

**Site-Specific Environmental Assessment**

**Rangeland Mormon Cricket Suppression Program**

**Idaho**

EA Number: ID-PPQ-MC-2004-001

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## **I. Need for Proposed Action**

### **A. Purpose and Need Statement**

The proposed action is to suppress Mormon cricket outbreaks on federally managed rangeland in Southern Idaho. Populations of Mormon crickets occur in some areas nearly every year in Southern Idaho. The Animal and Plant Health Inspection Service (APHIS) regularly evaluates the population levels and locations of outbreak infestations. This evaluation helps to determine if site specific action is necessary to suppress outbreaks, to protect rangeland ecosystems, and to counter the potential for the crickets to spread across rangelands or into surrounding crops and communities. APHIS is proposing a program to suppress outbreak populations, and is consulting with land management agencies and others in the design and implementation of the program. Specifically, APHIS is consulting with Bureau of Land Management (BLM), U.S. Forest Service (FS) and the State of Idaho. This environmental assessment (EA) analyzes potential environmental consequences of the proposed action and its alternatives. This EA applies to a proposed suppression program that would take place from April 15, 2004 to August 15, 2004 in Southern Idaho.

Populations of Mormon crickets that trigger the need for a suppression program are considered on a case-by-case basis. There is no specific Mormon cricket population level that triggers APHIS participation. The density of three Mormon crickets per square yard is used as the minimum population for which a suppression program would be considered. However, in many cases, populations of much greater than three Mormon crickets per yard may not justify a suppression program. In response to requests from land owners/managers, APHIS would determine if an outbreak has reached an economically or environmentally critical level. If so, an appropriate treatment plan would be developed, taking into account additional site specific information.

Participation would be based on potential damage such as reduction of critical forage and habitat for some species of wildlife and livestock, destruction of rangeland revegetation projects, creation of public nuisances, and endangerment of road traffic. Participation would also be based on benefits of treatments including protection of forage and habitat, increased probability of success for rangeland revegetation projects, elimination of public nuisances, and prevention of hazards to road traffic. Some populations may not cause substantial damage to native rangeland yet may require suppression to prevent damage to high economic value crops on adjacent private land. The goal of the proposed suppression program analyzed in this EA would be to reduce Mormon cricket outbreak population levels in order to protect rangeland ecosystems and/or private cropland adjacent to rangeland.

This EA is prepared in accordance with the requirements under the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) § 4321 *et.*

*seq.*) and the NEPA procedural requirements promulgated by the Council on Environmental Quality, United States Department of Agriculture (USDA), and APHIS. A decision will be made by APHIS based on the analysis presented in this EA and the results of public involvement and consultation with other agencies and individuals. Three alternatives are analyzed. A selection of one of the three alternatives will be made by APHIS for the 2004 control program for Southern Idaho.

## **B. Background Discussion**

In rangeland ecosystems in the Western United States, Mormon crickets are a normal component of the biota. Mormon crickets forage on grasses, forbs and shrubs. Cowan (1990) calculated that Mormon crickets at a density of 10 per square yard would consume 120 tons (dry weight) per 640 acres over their feeding span of approximately four months. They recycle nutrients and occupy a valuable position in the food chain. They are native to Western rangelands and they have evolved to occupy an important niche in the ecosystem. Even though the ecosystem has been impacted by various forms of human intervention and invasion by foreign plant and animal species, and in spite of their voracious appetites, Mormon crickets are usually benign with respect to human values. Although millions of acres of rangeland are infested by Mormon crickets every year, only a small portion of the area would normally be justified for a suppression program due to outbreak population levels.

Additionally, integrated pest management (IPM) systems may help hold Mormon cricket populations below economically damaging levels. Management tools which can be implemented by farmers, ranchers and land managers include:

### Mechanical Control

In the earlier half of the 20<sup>th</sup> Century, mechanical flails and “hopper-dozer” collection devices were used to kill Mormon crickets. These devices would not be compatible with contemporary precepts regarding destruction of rangeland plant life due to their effects on sagebrush and other shrubs.

### Chemical Control

Insecticides can be effective in reducing Mormon cricket populations. However, in IPM systems, insecticides must be applied only when their use is warranted by potential economic loss and justified with respect to other environmental concerns.

### Biological Control

Conservation of the natural predators, parasites, and pathogens sometimes help hold Mormon cricket populations below outbreak levels. Avoidance of unwarranted insecticide applications is a key measure in such conservation programs. Some birds and mammals are very effective predators on Mormon crickets. Domestic birds including turkeys and geese have been used in some localized areas to reduce Mormon cricket populations.

Classical biological control is based on importing and releasing foreign biological control agents to control exotic invasive species. Classical biological control is not an option for Mormon crickets, because Mormon crickets are a native species.

Stakeholders have suggested that the biological insecticide *Nosema locustae* should be utilized in suppression programs in Idaho. Although some testimonials and limited research exist regarding the effectiveness of *Nosema locustae*, it is not likely to provide effective suppression in Idaho. It does exist naturally in the overall population, but it loses much of its viability at temperatures over 70 degrees F. (Evans 1990).

#### Cultural Control

USDA's Agricultural Research Service and Land grant University researchers have accomplished significant research on grazing management and its impacts on grasshopper population density (Onsager 1996, Manske 1996, Onsager 2000). However, this research is primarily applicable to grasshoppers in short grass prairie ecosystems, not to Mormon crickets in the rangelands of the Great Basin. Fielding and Brusven (1996) concluded that grasshopper population densities in Idaho could be decreased in the short term by increasing stocking rates of cattle two to three fold versus the normal stocking rate. However, they also concluded that this practice would have negative long term effects including the promotion of high densities of pest grasshopper species.

In commentary on the recent Grasshopper/Mormon cricket Environmental Impact Study conducted by APHIS, another federal agency suggested burning and flooding rangeland to manage Mormon crickets. Private landowners have also suggested burning rangeland to eliminate Mormon crickets.

#### Predicting Mormon cricket Outbreaks and the Role of APHIS

Mormon cricket populations can build up to outbreak levels despite even the best land management and other efforts to prevent outbreaks. At such a time, a rapid and effective response may be needed to reduce the destruction of rangeland vegetation and protect crops. Unfortunately, there is currently no reliable way to accurately predict the locations and severity with which outbreaks will occur.

APHIS conducts annual surveys for Mormon cricket populations on rangeland in Idaho. APHIS also provides ongoing technical assistance on Mormon cricket management to land owners and managers. APHIS works cooperatively to suppress Mormon cricket outbreaks on Federal land when direct intervention is requested by the Federal land management agency and APHIS determines that intervention is appropriate. Results of the 2003 Idaho Mormon cricket survey are found at:

<http://www.agri.state.id.us/PDF/Plants/2003%20IDAHO%20GRASSHOPPER%20REPORT110703.pdf>

The need for rapid and effective suppression of Mormon crickets, when an outbreak occurs, limits the options available to APHIS. The application of an insecticide within the outbreak area is the response available for APHIS to rapidly suppress or reduce (but

not eradicate) Mormon cricket populations and effectively protect rangeland and adjacent resources such as private cropland.

In June 2002, APHIS completed an Environmental Impact Statement (EIS) document concerning suppression of Grasshopper and Mormon cricket populations in 17 Western States (Rangeland Grasshopper and Mormon Cricket Suppression Program, Environmental Impact Statement, June 21, 2002). The EIS described the actions available to APHIS to reduce the destruction caused by grasshopper and Mormon cricket populations in 17 States (Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming).

APHIS' authority for cooperation in this suppression program is based on Section 417 of the Plant Protection Act of 2000 (7 U.S.C. § 7717).

In May 2002, APHIS and FS signed a Memorandum of Understanding (MOU) detailing cooperative efforts between the two agencies on suppression of grasshoppers and Mormon crickets on national forest system lands, document #02-IA-11132020-106. This MOU clarifies that APHIS will prepare and issue to the public site-specific environmental documents that evaluate potential impacts associated with proposed measures to suppress economically damaging Mormon cricket populations. The MOU also states that these documents will be prepared under the APHIS NEPA implementing procedures with cooperation and input from FS. The MOU further states that the responsible FS official will request, in writing, the inclusion of appropriate lands in the APHIS suppression project when treatment on national forest land is necessary. The FS must also approve a Pesticide Use Proposal (Form FS-2100-2) for APHIS to treat infestations. A Pesticide Use Proposal is the tracking mechanism by which pesticide use is reported to the Environmental Protection Agency (EPA) whose role is to track use under the Federal Insecticide Fungicide and Rodenticide Act as amended (Public Law (P.L.) 92-516). Responsibility for administering the act is vested in the EPA. According to the provisions of the MOU, APHIS could begin treatments after APHIS issues an appropriate decision document and FS approves the Pesticide Use Proposal.

In February, 2003, APHIS and BLM signed a MOU detailing cooperative efforts between the two agencies on suppression of grasshoppers and Mormon crickets on BLM managed lands, APHIS PPQ MOU # 03-8100-0870-MU. This MOU clarifies that APHIS will prepare and issue to the public site-specific environmental documents that evaluate potential impacts associated with proposed measures to suppress economically damaging Mormon cricket populations. The MOU also states that these documents will be prepared under the APHIS NEPA implementing procedures with cooperation and input from the BLM. The MOU further states that the responsible BLM official will request, in writing, the inclusion of appropriate lands in the APHIS suppression project when treatment on BLM managed land is necessary. The BLM must also prepare a Pesticide Use Proposal for APHIS to treat infestations. According to the provisions of the MOU, APHIS could begin treatments after APHIS issues an appropriate decision document and BLM approves the Pesticide Use Proposal.

APHIS and Idaho State Department of Agriculture (ISDA) cooperate under MOU 03-8100-0403-MU to protect agricultural, horticultural and timber, and natural plant resources from losses caused by plant pests. This cooperation is conducted by APHIS by virtue of authority included in the act establishing the United States Department of Agriculture and the Plant Protection Act of June 20, 2000, (7 USC 7701-7772), which defines plant pests, and provides the Secretary of Agriculture authority to cooperate with States or political subdivisions thereof, farmers' associations, and similar organizations, and individuals to eradicate, suppress, control, or to prevent or retard the spread of the plant pests. ISDA manages Mormon cricket suppression programs on state and private lands, and APHIS manages Mormon cricket suppression programs on federally managed lands.

### **C. About This Process**

The EA process for Mormon cricket management is complicated by the fact that a decision to treat a specific outbreak area cannot be made until the need for treatment is imminent. Summer surveys help to determine general areas where Mormon cricket infestations may occur the following spring. There is considerable uncertainty, however, in the forecasts, so that framing absolute site specific treatment proposals for analysis under NEPA could not be effective or accurate. At the same time, the program strives to alert the public, in a timely manner, to its more concrete treatment plans and avoid or minimize harm to the environment in implementing those plans.

The 2002 EIS provides a solid, analytical and regulatory foundation; however, it may not be enough to satisfy NEPA completely for actual treatment proposals, and the "conventional" EA process will seldom, if ever, meet the program's timeframe of need. The following approach to NEPA compliance for anticipated requests to treat for Mormon cricket infestations will be followed:

This EA will analyze aspects of environmental quality that could be affected by Mormon cricket treatment in the proposed suppression area. This EA will be made available to the public with a comment period. Following the comment period any necessary changes will be made and a Finding of No Significant Impact (FONSI) may be issued if appropriate.

When the program receives a treatment request and determines that treatment is necessary, the specific treatment site within the proposed suppression area would be extensively examined to determine if environmental issues exist that were not covered in this EA. If no changes to the EA, FONSI, or APHIS' Guidelines for Treatment of Rangelands for Grasshoppers and Mormon Crickets (treatment guidelines) (Appendix 1) are warranted, an addendum to the EA would be prepared stating this. If changes need to be made to the EA, FONSI, or treatment guidelines, the program would prepare a supplement to the EA describing the changes and/or additional site-specific issues that were not covered in the EA. Whether an addendum or supplement is prepared, these documents would be provided to all parties who request them. Addenda and supplements would be prepared between the time that a treatment is deemed necessary and the time that treatment is applied.

Addenda and supplements would be prepared in consultation with the federal land manager.

## **II. Scoping and input from the public**

November 7, 2003, APHIS mailed a scoping document to individuals and organizations who had indicated interest in Mormon cricket suppression programs in past years as well as other stakeholders. Idaho State Department of Agriculture assisted by issuing a notice of availability and posted the scoping document on their public website:

<http://www.agri.state.id.us/PDF/Plants/2004%20Idaho%20Grasshopper%20Program%20Environmental%20Scoping.pdf>

Response from the public and from governmental entities was mixed. Several respondents seemed to confuse U.S. Department of Agriculture and Idaho State Department of Agriculture. Some responses were sent to another agency or organization and then forwarded to APHIS. Responses arrived by U.S. Mail, fax transmission, and electronic mail. The responses often grouped grasshoppers and Mormon crickets as a single entity. Sometimes concerns about Mormon crickets were separated from concerns about grasshoppers. Summaries of responses:

### Responses from individuals

Twenty one individuals from various locations around Idaho and from Tremonton, Utah sent similar comments supporting the proposed suppression program. They expressed the view that grasshoppers and Mormon crickets can cause severe economic damage when populations are left uncontrolled. They said APHIS should respond promptly and should select insecticides based on cost and effectiveness. They mentioned that APHIS must follow insecticide label directions that, therefore, APHIS should not be restricted from using any insecticides labeled for control of grasshoppers and crickets on rangeland. They stated that there is far more danger for potential harm to other insects, birds, fish and mammals from unchecked populations of grasshoppers and crickets devouring food and habitat and causing erosion into streams than would be caused by properly applying insecticides to control the outbreaks.

Five other individuals from Boise, Blackfoot, Midvale, and Indian Valley sent similar comments, but added additional information. One said we need to use common sense to control the crickets and grasshoppers just like we control mosquitoes around cities and flies around dairies. He stated that his neighbors had to charge high prices for their hay because yields were down and that leads to a disaster program. Another stated that Mormon crickets ravaged his horse pasture, causing him to have to buy additional forage and potentially lose profitability in his small horse operation. Another spoke of witnessing the rapid disappearance of forage due to infestations of grasshoppers and Mormon crickets. Another stated that grasshoppers and Mormon crickets had exploded over the last few years and that the out-of-control populations have caused severe ecological damage. She wrote of feeding on plants which are ESA listed, plants which feed native wildlife and livestock, and valuable crop plants. Another mentioned that he

was born and raised in Malad, and when he visited this summer it appeared the road and fields were literally moving with so many pests.

Seven individuals or couples, identified as farmers or ranchers in Oneida County sent individual letters. One individual said he encountered up to 20 Mormon crickets per square foot in patches several acres in size. He expressed concern that large areas of the Pocatello Valley could be mowed down by crickets. Another individual said he participated in a cooperative spray program in 2003 which saved crop and forage. He said he lost half his crop and all his pasture to grasshoppers in 2002 and he wanted to participate in spray programs in 2004. A couple stated their belief that control programs are warranted. They said they had significant feeding by crickets in their hayfields, and that they utilized bait to protect some plantings. Another individual spoke of grasshopper problems and the organization of a group of farmers, ranchers, townspeople and homeowners to participate in an aerial spraying program. He claimed the spraying saved millions of dollars in losses in the county. Another individual said he was hit hard by grasshoppers for the past two years. He said he hoped Mother Nature would take care of future problems, but that we should be prepared to protect crops and pastures. Another individual said he lost half his barley crop, at the loss of \$20,000, to the most severe grasshopper and cricket infestation he ever witnessed. He mentioned lack of funding and opposition to spraying programs by some groups. He expressed concern that pest populations would be high in 2004 and hoped that planning and funding would be available for control. Another farmer said his irrigated spring grain crops were destroyed by crickets despite his efforts to control them with bait. He expressed feelings that federal land managers should assist landowners in controlling the cricket infestation to avoid catastrophe.

Six individuals or couples who appeared to be ranchers or farmers from Franklin County sent individual letters. One farmer said there were hardly any Mormon crickets and grasshoppers in his area in 2003, but programs should be flexible to deal with the future. A couple requested help fighting the Mormon crickets and grasshoppers on their place. They questioned why people from outside the area should be able to block the help they need and they suggested groups opposed to control programs might change their minds if they saw the damage to the area, pasture, property and environment. Another individual said that the past few years grasshoppers have destroyed grass, small trees and the garden. He said he would welcome assistance in controlling the grasshoppers. Another individual said that failing to control grasshoppers would cause hardship and economic loss. Another individual said he was in favor of grasshopper control in his area. He said his fields, home gardens in the area and surrounding rangelands were infested by large populations. He said he did not have Mormon cricket problems on his property but was aware they were nearby. Another individual expressed need for a control program because he had been unable to prevent damage with the methods he used.

We received eight responses about grasshoppers from Cassia County. An individual from Oakley wrote in support of grasshopper and Mormon cricket suppression because the damage they do is not acceptable and control methods are available. Seven ranchers from Almo and Malta wrote. One said there are plenty of grasshoppers and he could be

in trouble. Another said he sprayed four times in 2003 to control grasshoppers. Another said grasshoppers were so thick that the ground was black wherever they were and people sprayed malathion on limited areas trying to control them. He said they were losing ground using this method and would have lost considerable amounts of vegetation had not a helicopter spray program been initiated. Another said his ranch had a serious problem with serious crop loss and would have lost more had a cooperative program not been initiated. He said farmers and ranchers cannot control the outbreak with their own resources and that the suppression program is vital to the community's natural resources and ranching productivity. Another rancher documented grasshopper programs in the spring and said that a community action program pretty well eliminated their problem. Another rancher said he lost 20-25% of his pasture, hay and grain crops in 2003; 80% of his grain crop, 100% of his pasture and grass hay, and 50% of his alfalfa hay in 2003 to grasshoppers. He said he used spray and bait on his own land but that grasshoppers came from BLM land. Another rancher said he aially sprayed areas of his ranch which were infested, but that it is crucial for the government to participate in grasshopper/Mormon cricket infestations on federal land.

An individual from Emmett wrote to support the proposed grasshopper and Mormon cricket suppression program because safe and effective methods of control are available and he considered it foolish to allow the insects to ravage farms and rangelands.

Two individuals from Meridian wrote to suggest that Alternative 2 (Insecticide Applications to Large Rangeland Blocks to Suppress Grasshopper/Mormon cricket Populations in Generalized Areas) should be selected. One said he had seen grasshoppers and Mormon crickets turn otherwise healthy rangeland into a wasteland. He said he thought Alternative 3 (Insecticide Applications to Smaller Rangeland Blocks to Protect Specific Resources) would almost be a wasted effort. He said Alternative 1 (No Action) should be avoided at all costs. The other individual suggested if Alternative 2 could not be implemented, Alternative 3 would be the next logical choice. He noted that rangeland provides feed and shelter to wild game which includes protected and threatened species.

An individual and a couple from Boise wrote to suggest that the proposed treatment program should be conducted. The couple said they have been fighting Mormon crickets for three years with help from Elmore County and the crickets are moving toward Boise. They suggested that the roadways should be treated by governmental authorities. The individual stated that he had been informed that efforts would be made to curtail control of the cricket and grasshopper outbreak. He stated that he was not aware of substantive proof or study to support contentions that baiting/poisoning is harmful to game, birds, fish and other living things. He stated that he had mitigated cricket damage to elk range with bait.

Two individuals from Horseshoe Bend wrote. One said he was for whatever it takes to control the Mormon cricket outbreak; that he had suffered losses for the past four years; that his water source has been infected; and the bait is ineffective. The other said he believed the no spray action would have a negative impact on his lands, the larger agricultural lands bordering his land, and the entire economy state wide.

An individual from Pocatello wrote to express concern that the proposed suppression program would have adverse side effects. He indicated that diflubenzuron is a chitin inhibitor which means any juvenile insect or crustacean would be killed, not just grasshoppers and crickets. He said this would lead to fewer insects being available to insect eating birds. He expressed concern that the 2002 Grasshopper EIS failed to adequately address the effects of cholinesterase inhibitors on young grouse chicks. He referred to a recent paper by Steven T. Knick in *The Condor* which he said addressed cumulative effects of land treatments and the ability of western rangeland to support native avifauna. He suggested that predation on sage grouse chicks probably increases in proportion to the time spent foraging. He mentioned several bird species which feed on insects. He suggested we should look for grouse feces and survey for insectivorous birds in proposed treatment areas. He suggested we conduct experimental analyses including before and after studies and control and experimental plot examination of the effects of treatments. He mentioned that he did not find any analyses of the effects of treatments in the EIS.

An individual from Hailey said he does not approve of grasshopper and Mormon cricket control schemes and prefers Alternative 1 (No Action). He said we have poisoned our land enough and do not need to continue especially for the benefit of ranchers. He said public land belongs to the public, and we should not spray because ranchers feel native insects cut into their profits.

An individual from Twin Falls wrote to say he believed Alternative 1 (No Action) is the best alternative. He indicated that Idaho's sagebrush steppe is in poor condition and he fails to see how poisoning the habitat will make it better. He stated that insects are an important part of the sagebrush steppe habitat and that preserving the habitat requires keeping all pieces of the functional ecosystem. He mentions roles of insects as pollinators, grazers, predators, germinating agents for seeds, biological controls on plant populations, converting plant matter into protein and lipid packets for vertebrates and fascinating wildlife. He states that there are not grasshopper specific insecticides and that carbaryl bait will jeopardize ant colonies. He states that carbaryl is a wide-spectrum insecticide and that malathion was reported to induce muscle weakness in chickens. He mentions sage grouse are akin to chickens so malathion seems a poor choice for use in the program. He states that diflubenzuron is a chitin inhibitor which prevents proper formation of an exoskeleton of all insects and probably crustaceans. He states that monitoring should be done to insure that none of Idaho's sensitive insect species are present in treatment areas. He states that long term results of treatments would be increase in grasshopper and Mormon cricket populations, decrease in rangeland health and decrease in wildlife resources in treated areas. He suggests that insecticides should be used to eradicate small populations of non-native insects but should not be used on public land to control grasshoppers. He suggests that Section 417 of the Plant Protection Act of 2000 is unattainable and that pesticide use cannot be cost-justified. He cited Emmel and Eliazar regarding development of insecticide resistance, destruction of nontarget natural enemies such as parasitic and predatory species, pest resurgence, contamination of food webs, and ecotoxicity of pesticides. He cited Graham regarding bioaccumulation of pesticides by predators. He cited Burnie regarding ecosystem

interactions, destruction of predators, and development of resistance. He cited Wuerthner and Matteson regarding degradation of rangeland by livestock grazing and suggested the health of rangeland would not be aided by poisons. He suggested that grasshoppers and Mormon crickets are currently accorded a negative status as was done with birds of prey in prior centuries. He suggests that it is not reasonable for value systems to accept grazing by livestock as acceptable, but consumption of forage by grasshopper as unacceptable. He offered an anecdote about people who live near the Snake River objecting to duck hunting near their homes and suggested that people who live near rangelands should move if they object to grasshoppers and Mormon crickets infesting the area where they live. He stated that the gain a private individual might obtain from treatment of pests on public land is outweighed by public benefits of healthy ecosystems.

#### Responses from private organizations

Idaho Cattle Association voiced support for a suppression program and said it should allow for common sense and be flexible so it can respond to situations as they occur.

Idaho Farm Bureau Federation mentioned economic losses suffered by farmers and ranchers and loss of wildlife food and habitat due to unchecked cricket and grasshopper infestations. They said APHIS should respond promptly to requests from land managers and utilize the most efficient and cost effective means available to control outbreaks. They stated that no evidence has been presented regarding unintended consequences of properly applied treatments following label directions.

Idaho Hay Association stated that when a sizeable outbreak of grasshoppers and Mormon crickets occur, it has a considerable impact on the quality and tonnage of hay harvested. The Association supported Alternatives 2 and 3, with a preference for Alternative 2.

The Idaho Honey Industry Association stated that they wish to be on record to support diflubenzuron for use on public lands. They stated that in the 1980s malathion and carbaryl were used in such quantities as to saturate the air with levels toxic to bees 25 miles away.

Idaho Wheat Commission stated that Mormon cricket and grasshopper suppression programs need to continue and that programs on public lands are needed to protect private lands.

Food Producers of Idaho cited damage suffered by farmers and ranchers when grasshoppers and Mormon crickets are not quickly controlled on public lands. They suggested that following label directions should allow use of any labeled product for control. They mentioned that grasshopper and Mormon cricket outbreaks can pose harm to other insects, birds, fish, and mammals. They mentioned that EPA has adopted interim policy clarifying use of pesticides with respect to the lack of requirement for National Pollution Discharge Elimination System and Clean Water Act permits.

Minidoka Soil and Water Conservation District said that outbreaks pose a serious threat to agricultural economies and wildlife populations in Idaho. They suggested that the

environmental assessment should allow implementation of new control techniques as they are developed. They stated the program must be responsive to each particular situation. They implied that limiting treatments to within ½ mile of private land impeded program effectiveness.

The Xerces Society stated that they are not opposed to all pesticide uses, but are opposed to use or aerial spraying to control native insects on grasslands across Idaho. They stated that buffer strategies proposed by APHIS in the past are inadequate to protect natural resources. They recommended that: APHIS should use only bait or granular formulations; use insecticides only when Mormon crickets will adversely impact private property through the loss of a crop resource; complete more frequent and intense monitoring to identify populations that can be controlled; use large buffer areas around all water sources including intermittent and ephemeral streams, wetlands, threatened and endangered species habitat, honey bee hives, and any human inhabited area; ensure that notification of all individuals near a sprayed area is completed before any spraying occurs; and monitor sites before and after spraying to determine if there is an impact on water quality or non-target species. They provided information on the physics of pesticide drift. They cited several studies on pesticide drift. They concluded that granular pesticides do not drift as far as spray. They stated that buffers for granular pesticides should be large so they do not wash into water bodies. They discussed the chemical nature and toxicities of diflubenzuron, carbaryl and malathion. They stated that spray drift into aquatic ecosystems may have adverse impacts. They stated that if pesticides are to be sprayed by air, buffers for all aquatic features should be a minimum of one mile. They addressed Bruneau Hotspringsnail and described its range and habitat. They stated that it is extremely susceptible to pesticide drift and that diflubenzuron, carbaryl and malathion are all very toxic to snails. They stated that a two mile buffer is warranted for the snail. They addressed protection of honey bees. They stated that the majority of bee poisonings occur due to contact between bees and contaminated foliage and that malathion residue on plants will remain toxic to bees for up to 5.5 days. They gave examples of how far bees will forage. They concluded that a two mile buffer is necessary to protect bees. They addressed leafcutter bees and alkali bees and stated that malathion remains toxic to alfalfa leafcutting bees for seven days. They addressed the numbers, mass, and diversity of invertebrates and their roles in ecosystems. They stated that the insecticides that would be used to control Mormon crickets and grasshoppers are also lethal to most beneficial insect and other vertebrates. They stated that increases in several insect pests followed malathion treatments to eradicate Mediterranean fruit fly in California. They state that malathion has been found to be more toxic to natural enemies than to target pests. They stated that a control program for Mormon crickets could have a devastating impact on native bee fauna and could affect the ability of many rangeland plants to reproduce. They stated that insecticides are capable of killing any insect they hit directly or come into contact with via a treated surface. They conclude that Mormon cricket control could cause devastating adverse impact to aquatic and terrestrial resources because of the chemicals that might be used and the scale at which application might take place. They suggest that APHIS should identify populations that can be controlled when they are small with ground based equipment.

Idaho Conservation League (ICL) opened their letter by saying that they hoped they would not need to take legal action against the Idaho grasshopper and Mormon cricket suppression program as they did in 2003. They stated that they were concerned that APHIS would develop a proposal that does not adequately protect human health; is too large in scope and seeks pre-approval to treat areas that do not need treatment and/or areas that should not be treated; will employ treatment methods that are not protective of water quality; non-target species will be harmed and/or eliminated; and inappropriate and unwarranted toxic chemicals will be applied to sensitive, protected and otherwise inappropriate lands. They acknowledged recent face-to-face meetings between APHIS and ICL representatives to discuss concerns. They suggested APHIS could develop a program which narrowly targets specific areas that are most likely to experience large populations of grasshoppers and crickets. They expressed the belief that APHIS had previously sought blanket approval to treat many millions of acres that make up the Snake River Basin. They suggested that APHIS should outline the steps it will take to ensure that pesticides do not pollute water and mention that pesticides other than bait might be acceptable if the project were sufficiently tailored and the application methods sufficiently precise. They attached the comments they made jointly with Xerces Society in April 11 and April 15 of 2003 regarding alleged violations of the Clean Water Act; lack of site specificity and failure to properly analyze impacts in the 2003 EA; process followed by APHIS to meet NEPA requirements; and failure to meet ESA requirements. They attached a copy of their April 11, 2003 Notice of Intent to Sue and Seek Emergency Injunctive Relief Over “Rangeland Grasshopper and Mormon Cricket Suppression Program, Idaho”. They enclosed a copy of their Complaint suing Jim May, Bureau of Land Management, US Forest Service, USDA Animal and Plant Health Inspection Service, and C. David McNeal, Jr. for alleged violations of National Environmental Policy Act, Administrative Procedures Act, Federal Land Policy Management Act, and National Forest Management Act. They attached a copy of a declaration by Scott Hoffman which was apparently prepared for but not submitted to the court in the lawsuit. They state in closing that APHIS has proposed a very limited number of treatment options. They say APHIS needs to provide additional treatment options including but not limited to reduced rates of pesticide application, biological controls, alternative methods of rangeland management, and reducing the percentage of land treated within a given treatment area.

Western Watersheds Project (WWP) expressed several concerns. They included a request that APHIS prepare an EIS that analyzes the impacts of this action, and that considers a full range of alternatives, including no treatment of large blocks of rangelands, no treatment of areas greater than ¼ mile from human habitation or cropland, no use of aerial application of any chemicals, and no use of malathion. They requested analysis of a restoration alternative, and an alternative that focuses on APHIS advising farmers on crop protection on their own lands, rather than public lands. They state that EIS fails to adequately analyze impacts of the APHIS program on soil, water, watersheds, native animals, native plants, human health, and human uses and enjoyment of the affected lands. They say they oppose the continued application of chemicals to public lands, while at the same time little if any effort is being made to improve the ecological condition of these lands, and to restore those that are degraded by livestock grazing

practices. They ask for full analysis of the effects of grasshoppers and Mormon crickets on healthy native plant communities, vs. degraded or exotic-dominated plant communities. They state that no treatment of any public lands greater than ¼ mile from croplands or human habitation should occur. They state that to do so is a subsidy to the public lands livestock industry, at the expense of native ecosystems. They ask for a full and balanced analysis of the benefits of Mormon crickets and grasshoppers to native ecosystems. They state that no treatment of large blocks of remote "rangeland" should be allowed under any circumstances because an undisturbed insect food base must be protected. They expressed concerns about the impacts of chemical drift in both wind and water. They point out that the affected lands consist of a wide array of varying topographical features and that sudden and erratic wind and weather shifts are frequent. They state that allowing aerial spraying, under Idaho state law, in winds up to 10 miles per hour is inappropriate for wild land settings. They state that while this may provide some measure of assurance of lessening drift in flat large valley areas of extensive irrigated crop land, the variability in terrain, in wild land settings is simply too complex to provide assurance that lethal drift will not occur. They inquired about probabilities of drift on wind-blown soil. They ask what area size of buffers are needed to protect from contamination with chemicals transported on wind-blown soils. They mention erosion rates and suggest they should be considered and assessed. They question the effect summer thunderstorm events would have on transport of chemicals into surface waters and how long will each of the chemicals persist if transported into water. They question what research has been conducted on the appropriate size for buffer widths to minimize pollution of surface waters. They state that they are opposed to the use of malathion under all circumstances. They express concern that full consultation over the use of diflubenzuron has not been completed. They state that APHIS must agree to take all possible measures to notify and alert the public to impending chemical applications, and post any sprayed lands with signs warning the public that chemicals have been used. They say that farmers today put up "Peligro - Pesticides. Danger - Pesticides" signs on private lands. They report that chemical sensitivities are increasing among many segments of the population, and the program should strive to maximize public awareness of exposure to potentially harmful chemicals. They say pregnant women, children, and those with chemical sensitivities should be provided with an opportunity to avoid all application areas, and know what chemicals they are being exposed to. They say advance warning of chemical application should be given to all residents within 5 miles of the zone of application. They say citizens with honest concerns should be allowed to protest any aerial application of chemicals, and that APHIS must rely on ground-based extremely specific application of least harmful chemicals or no application if health risks are too great. They say a protocol for protests by local residents must be established. They suggest that avoidance of high value recreation lands should be a top priority to minimize exposure of recreational users of public lands to insecticides. They mention the example of the foothills near Boise which receive a tremendous amount of recreational use. They express concerns about the extent of monitoring that occurs - both prior to treatment as well as following chemical application. They ask if APHIS prepares annual reports of the kind that list areas treated, and outcomes of monitoring. They ask how much monitoring for mortality of non-target organisms has been done and with what results. They ask if

APHIS has monitored for drift, and if so, what the results were. They ask how much damage to rangelands has actually occurred in comparable treated vs. untreated lands. They request data on forage production vs. consumption in a variety of rangeland habitats in southern Idaho and suggest that such monitoring data should be fully displayed and thoroughly analyzed in the EIS. They ask where, in recent years, APHIS conducted chemical application in Idaho and what methods were used. They ask what were the results of the monitoring, was the treatment effective, and did it stave off crop or other damage. They express concern that an accurate and realistic economic analysis has not been conducted. They inquire as to the value of the medusahead and cheatgrass rangeland forage that grasshoppers or Mormon crickets consume in various locations. They ask for comparable estimates of the value of recreational, open space, and hunting opportunities the areas infested with medusahead and cheatgrass may provide. They request costs comparison between annual spraying for the next 20 years, and undertaking restoration. They say they have heard assertions about the use of livestock to control cheatgrass and lessen fire danger. They ask why not allow Mormon crickets instead of grasshoppers to be a tool for lessening fire danger on wild lands, and they ask for a full analysis of this alternative. They express concern that the EA covers the possibility of rangeland application to protect livestock forage on public lands. They assert that there should be absolutely no spray or chemical application on public land to protect forage for livestock on public land. They say that grazing on public lands is a privilege, and that permittees are not guaranteed constant access to forage. They state the EIS failed to assess the impacts of chemicals on public lands resources that would be affected by spraying undertaken to kill grasshoppers in order to protect cow food on public lands. They claim the EA and EIS do not demonstrate that APHIS follows an Integrated Pest Management Strategy, rather that APHIS uses pesticides to kill insects, rather than working to address causal factors of infestations, or finding ways to mitigate or lessen damage, or working with farmers to apply chemicals to their fields, rather than public lands. They express dismay that APHIS has not considered and assessed a broader range of alternatives. They note that a no aerial application of herbicide, and public warning and posting alternative was not considered. They note that an alternative that focused only on application to crops and field margins was not considered. They note that an alternative that used only carbaryl bait and diflubenzuron was not addressed. They note that an alternative that employed biological surveys for sage-steppe and other species prior to application, with specific avoidance areas for species like burrowing owls, was not assessed. They note that impacts of chemical application on insectivorous species has not been assessed. They note that the Idaho Conservation Data Center has many known locations of rare and sensitive species in its database and that APHIS could rely in this data to automatically establish "no spray" or minimal spray zones. They express concern that necessary studies to understand the full scope of the effects of diflubenzuron on wild land ecosystems have not been done. They question whether diflubenzuron interferes with chitin formation in fungi and other physiological processes on other groups of organisms and if it effects hormones. They state that the synergistic effects of the chemicals that APHIS proposes to use have not been adequately assessed. They express concern about the involvement of land managers in projects. They express concern about assessment of cumulative impacts of chemical use on private lands when coupled with chemical use on public lands. They express concern about cumulative impacts of other possible

chemical application that could occur on crop lands at the interface with wildlands. They ask for detailed maps that indicate in detail where APHIS conducted spray operations of this sort within the past decade and detailed maps showing where the current proposal will occur. They say APHIS must commit to pre- and post-spray monitoring of a broad array of native insects and selected invertebrate species in lands and waters within 5 miles of application areas including species composition, species abundance, and population density information. They say the costs to the public of acres treated and acres protected must be tallied for all of a broad range of alternatives. They say costs of recovery of populations of sage grouse, Columbia sharp-tailed grouse, and sage sparrow impacted by the spraying must be tallied. They say relative values of acres of lands protected by spraying vs. value of a population of Columbia sharp-tailed grouse needs to be assessed. They say a full detailing and analysis of all federal subsidies associated with growing crops protected by APHIS spraying must be detailed. They say impacts to pollinators of rare and native plants, reduced food supply to birds, bird mortality from poisoning and loss of food to fish must be assessed. They state that no impacts to slickspot peppergrass can be allowed and that all slickspot habitats must be provided a 5 mile treatment buffer to protect pollinators. They ask for an estimate of the productivity of the land (bushels per acre, tons per acre) of lands protected vs. average yields area-wide and ask if the program aimed at protecting mainly marginal agriculturalists. They suggest that direct payments to agricultural enterprises to replace costs of insect damage would be appropriate. They ask the cost of each application method. They ask how much has been spent by APHIS in each of the past 10 years on this program; how much per acre; where; and how many acres of rangeland APHIS estimates would be sprayed. They ask, "At what cost to the public per acre "protected"?" They ask the value of beef, mutton, or whatever is produced on this land. They ask how much farm vs. rangeland APHIS sprayed in each of the past 10 years. They state that applications often occur at the wildland interface with usually marginal agriculture. They ask how often. They note that wildland interfaces have become increasingly used by, and increasingly valuable to the public as "open space" and recreational lands. They state that APHIS must present data that shows all the direct, indirect and cumulative impacts of all sprays/poisons/biocides used in the interface lands, and how these poisons/breakdown products/associated ingredients interact. They ask what health problems might they cause, and about their relative carcinogenicity. They say a full explanation and analysis of breakdown products, carriers, and other ingredients of poisons must be presented as part of this EIS. They say APHIS must commit to monitoring impacts of biocides rather than claiming there will be little or no impacts on nontarget species. They say that APHIS must carefully review the life history requirements and ecology of all special status and TES species that may be affected or found in the project area, and that APHIS must then prepare a full analysis of the impacts of its actions on local, regional and rangewide populations of these species. They note that Southern Idaho is home to several threatened, endangered, federal candidate and special status species and that full consultation with FWS for all species must occur.

They state that APHIS must analyze a full range of alternatives including:

Spraying biocides only on ag. fields.

Spraying biocides only on ag. fields, and further subsidizing agriculturalists by

paying for crop damage proven to have been caused by grasshoppers.

No spraying of biocides, and further subsidizing agriculturalists by paying for crop damage proven to be caused by grasshoppers.

Using biological control methods in all instances.

Using biological control methods near inhabited or high recreation areas.

Using only carbaryl bait, as it is less likely to pollute air and water.

Requiring landowners (including the state and federal government) to commit to reasonable and prudent actions to minimize grasshopper outbreaks before APHIS spends public funds. For example, before spraying BLM lands adjacent to agriculture, BLM must commit to taking specific measures to improving land conditions.

Using passive control measures as part of a full, integrated strategy - i.e. since it is recognized that

No APHIS action within 2 miles of sagebrush inclusions or other native vegetation of 2 acres or greater in size.

Payments to ag. interests here - heaped on top of other subsidies.

No treatment of any rangelands > 1/4 mile from crops or habitation.

No Use of Biocides Greater than 1/4 mile from any ag. field. Under ALL alternatives (including biocide action alternatives) there should be NO use of any biocides further than 1/4 mile from ag. fields.

No Spraying To Protect Grass on Public Rangelands. There should be absolutely no spraying or action of any kind taken by APHIS to protect grass or forage on public lands. Larger numbers of grasshoppers are frequently found on degraded lands.

Avoidance Areas as Part of All Spray/Poison Action Alternatives: APHIS must clearly specify all No Spray, or Avoidance areas as part of all alternatives.

They say APHIS must clearly specify insect population and other threshold levels that will be necessary to be quantified and reached before APHIS action can occur. They ask what specific criteria will be used to trigger action in all instances, and if there will there be different criteria for rangeland than cropland. They begin a sentence with, "The wording used to describe when." They say APHIS must allow ready public access to all information and records on its spray programs to ensure the public can rapidly gain access to information on government actions that affect human health. They state there is great likelihood of contamination of natural surface waters, as well as irrigation waters in canals from this action. They say the use of diflubenzuron is particularly frightening because it inhibits chitin necessary for aquatic insect development. They ask how APHIS will prevent these insecticides from entering canals. They ask how runoff would affect native biota. They say APHIS must commit to monitoring all waters in the vicinity of treatments. They ask how the program would impact waters like those of the Middle Snake. They state that it is impossible to tell from APHIS's scoping description whether there are intended to be any geographic limits of any kind on APHIS activities. They state that they oppose the use of malathion, carbaryl spray and diflubenzuron under any alternative.

#### Responses from governmental units

A university professor from Brigham Young University- Idaho inquired about potential learning applications for students in a pest control class.

Idaho State Department of Agriculture stated that dependence on only carbaryl bait is unwise and APHIS should make a more concentrated effort to allow for the use of diflubenzuron. They suggested APHIS's legal counsel should take a firmer stance with respect to litigation against use of diflubenzuron.

Idaho Department of Fish and Game (IDFG) asked APHIS to consider that insects are a primary food source for many wildlife species and suggested that narrow spectrum insecticides like diflubenzuron would not have as pronounced effect as broad spectrum insecticides like malathion. They suggested that the EA should discuss and prescribe buffer strips along waterways. They suggested avoidance of large-scale application of broad spectrum insecticides in areas with forbs to prevent negative impacts to pollinators of native plants. They suggested that the EA should reference the Slickspot Peppergrass Candidate Conservation Agreement, comment on potential pesticide use in occupied or potential habitat, not use broad spectrum insecticides within one mile of occupied or potential habitat and only use diflubenzuron or carbaryl bait when Mormon crickets or grasshoppers threaten occupied habitat. They recommended that malathion should only be used in habitats where there is low probability of significant numbers of sensitive species. They recommended the EA should address how efficacy of treatments is measured. They suggested utilization of RAATs methodology and focusing insecticide applications within one-half mile of cropland. They suggested referencing critical sage grouse and sharptail grouse nesting and brooding habitat maps cooperatively developed by IDFG and BLM and using them for treatment decision-making. They stated that the literature clearly shows that substantial damage to fish, wildlife, and vegetation could result from use of malathion and suggested that malathion should not be included in the scope of insecticides which might be used. They recommended that restoration of federal rangeland as a mitigation measure should be addressed in all alternatives in the EA. They suggested that use of shrub cover as a descriptor in prescribing treatments should be used.

Bonneville County Commissioners strongly urged insecticide treatment. They said alternative two would be best but that they would support alternative three. They said the No Action Alternative would show poor planning to mitigate potential economic damage.

Boise County Disaster Services suggested that rangeland, farmland, recreational lands and land adjacent to federal highways and state and local roads should be treated.

Power County Commission encouraged continuation of programs to control Mormon cricket and grasshopper infestations.

Ada County Weed and Pest Control reported that their department receives many calls about Mormon crickets when populations reach high levels. They suggested that organized treatments by APHIS would be preferable to uncoordinated treatments by individual landowners in the Boise foothills.

Three Idaho Cooperative Extension Service educators submitted comments. An educator from Power County stated that some combination of bait and spray programs offered by ISDA and APHIS is essential to control of grasshopper and Mormon cricket infestations.

on private, state and federal lands. An educator from Valley County cited research by DeBrey, Brewer and Lockwood which concluded that grasshopper outbreak populations should be prevented because outbreaks can last from three to six or up to twenty years. He gave examples of the success of spray programs on 40,000 acres in Valley County in 2001 and speculated about how the outbreak of *Camnula pellucida* might exist now, had it not been controlled in 2001. He suggested that the No Action Alternative is not a viable option. He suggested that Alternative 2 limits the ability of APHIS to perform work that needs to be done and suggested that Alternative 3 would give APHIS the most flexibility. An Extension Specialist from Twin Falls provided observations that significant damage to hay and forage crops resulted from grasshopper and cricket infestations in 2003. He suggested that controlling outbreak populations is better for the health and well-being of animal industries and the economics of the state and said the control measures will have little negative effect on the environment.

All written comments are available for public review at USDA APHIS PPQ, 9134 West Blackeagle Drive, Boise, Idaho.

#### APHIS response to scoping

Several individuals who were generally supportive of grasshopper and Mormon cricket treatments seemed confused about the relative roles of APHIS and ISDA. In 2003 ISDA participated in aerial spray programs on private land using aircraft and helicopters to spray diflubenzuron or malathion. ISDA also provided carbaryl bait to private parties for use on their own land. In 2003 APHIS applied 5% carbaryl bait to public rangeland with aircraft and/or ground-based application equipment. The 2003 annual report on treatments conducted by APHIS and ISDA is available at:

<http://www.agri.state.id.us/PDF/Plants/2003%20IDAHO%20GRASSHOPPER%20REPORT110703.pdf>

APHIS is aware of the locations where Mormon crickets were in outbreak status in 2003 and have developed this EA in response to that situation. A map depicting the locations of 2003 outbreaks is included in the 2003 Annual Report.

Diflubenzuron does not kill all juvenile insects and crustaceans. It must be ingested to inhibit chitin production; therefore it has no effect on juvenile insects and crustaceans that do not ingest a substrate (usually foliage) on which it has been deposited.

Toxicity of cholinesterase inhibitors to birds is discussed in the EIS pp B36, B42-B44, B56-B59. Specific information on potential impacts of the suppression program is discussed in the EIS pp 57-59.

This proposed suppression program is based on Section 417 of the Plant Protection Act of 2000 (7 U.S.C. § 7717).

Roles of insects in the environment and potential impacts of the proposed suppression program on insects are discussed throughout the EIS and this EA.

In this program, the cost-effectiveness of pest control measures must be based not only on the actual costs of application, but also on the legal costs associated with meeting the requirements of NEPA, ESA, CWA, APA and other laws. APHIS is obligated to meet more requirements than those found on the pesticide label in the conduct of its programs.

APHIS would provide for reasonable buffers around water. Areas which may, at some time, contain ephemeral or intermittent water would not be subject to buffering when they are dry.

Buffers provided by APHIS would not necessarily prevent all insecticide from reaching water. They would prevent amounts of insecticide capable of causing significant impact from reaching water.

Some insecticides are contact poisons, others are not. Insects are differentially susceptible to different insecticides.

APHIS has always and will continue to conduct NEPA and ESA processes in full compliance with each and all associated laws and regulations. APHIS is concerned that, in spite of the specific declaration in the 2003 EA that up to 100,000 acres of rangeland might be subject to treatment, ICL and other litigants issued statements that APHIS intended to spray up to 20 million acres of rangeland.

APHIS was confused by statements submitted by WWP regarding the content of the EA. The EA had not been drafted at the time the scoping was conducted, so the comments cannot accurately reflect a review of it. Also, APHIS was unable to determine the meaning of some statements made by WWP, and APHIS could not determine the relevance of some WWP comments to the proposed action. APHIS does address relevant environmental issues in this EA. APHIS does believe the EIS is accurate and relevant to suppression programs in the 17 western states.

APHIS will make available a mechanism whereby individuals can request that federally managed rangelands around or adjacent to their private property would be excluded from treatments for Mormon crickets. The request form is available at:  
<http://www.agri.state.id.us/PDF/Plants/No%20spray%20request.pdf>

APHIS has considered all comments relative to selection of insecticides which are appropriate for inclusion in the proposed 2004 Mormon cricket suppression program and has included costs and efficacy of treatments as well as costs of potential litigation in the decision process.

APHIS has selected areas for inclusion in the proposed treatment area based on best available information from previous year surveys and expert knowledge of historical infestations.

APHIS has attempted to incorporate all reasonable measures in response to comments by stakeholders.

### III. Alternatives

Reduced Area Agent Treatment (RAATs) is a Mormon cricket suppression method in which the rate of insecticide is reduced from conventional levels, and treated swaths are alternated with swaths that are not directly treated. The RAATs strategy relies on the effects of an insecticide to suppress Mormon crickets within treated swaths, while conserving Mormon cricket predators and parasites in swaths not directly treated. The area not directly treated (the untreated swath) under the RAATs approach is not standardized. In practice, in Idaho, the area infested with Mormon crickets that remains **untreated** has ranged from 50 to 90 percent. The 2002 EIS analyzed the reduced pesticide application rates associated with the RAATs approach but assumed pesticide coverage on 100 percent of the area as a worst-case assumption. This assumption was made because there is no way to predict how much area would actually be left untreated pursuant to local environmental analyses.

The alternatives presented in this EA are:

- (A) No Action,
- (B) Insecticide RAATs Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas (Preferred alternative),
- (C) Insecticide RAATs Applications to Smaller Rangeland Blocks to Protect Specific Resources.

The 2002 EIS is intended to explore and explain potential environmental effects associated with Mormon cricket suppression programs that could occur in 17 Western States. Rather than opting for a specific proposed action from the alternatives presented, the 2002 EIS analyzes in detail the environmental impacts associated with each programmatic action alternative related to Mormon cricket suppression based on new information and technologies.

The 2002 EIS examined the use of diflubenzuron spray, carbaryl spray, malathion spray, and carbaryl bait at traditional concentrations and coverage and at reduced rates of concentration and coverage.

For the 2004 Idaho Mormon cricket suppression program, APHIS would select 5% carbaryl bait at RAATs reduced coverage as the single insecticide and application method of choice. Carbaryl bait is the most costly and labor intensive option which is available to APHIS in 2004. The potential impact of carbaryl bait on some non-target species may be greater than the potential impact of diflubenzuron spray. However, because of threats of litigation, APHIS would opt to utilize the bait rather than the less expensive spray to avoid litigation expenses and potential delays to the program. In 2003 ICL and others notified APHIS of their intent to bring suit under the Clean Water Act (CWA) for the purpose of preventing spray applications for grasshoppers and Mormon crickets. Since that time, United States Environmental Protection Agency (EPA) has issued interpretive statements and guidance (EPA 2003a, EPA 2003b) indicating that spray programs like the proposed action may be conducted without permitting under CWA.

The potential generalized environmental effects of the application of carbaryl to rangeland for grasshopper and Mormon cricket suppression are discussed in detail in the EIS, (pp 38-42, 50-52, B10-B13, B22-B25, B29-B31, B36-B39, B46-B48, B52-B53, B56-B57, B60, C11-C13).

Insecticides used by APHIS for Mormon cricket suppression are used in accordance with all applicable product label instructions and restrictions. Representative product specimen labels can be accessed at the Crop Data Management Systems, Inc. web site at [www.cdms.net/manuf/manuf.asp](http://www.cdms.net/manuf/manuf.asp). Actual brand-name products used in suppression programs may vary, depending on supply issues.

All insecticide treatments conducted by APHIS would be implemented in accordance with the APHIS' *FY-2004 Guidelines for Treatment of Rangeland for Grasshoppers and Mormon Crickets*, (Guidelines), included as Appendix 1 to this EA. The 2004 Guidelines and Operational Procedures were developed by APHIS to provide established measures which would be employed in the 17 Western states where grasshopper/Mormon cricket suppression programs may occur.

#### **A. No Action Alternative**

Under the No Action alternative, APHIS would neither fund nor participate in a program to suppress Mormon cricket infestations. Under this alternative, APHIS may opt to provide limited technical assistance, but the suppression program would be implemented by a Federal land management agency, a State agriculture department, a local government, or a private group or individual.

#### **B. Insecticide RAATs Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas (Preferred alternative)**

Under this alternative, APHIS would treat blocks of land in excess of 10,000 acres to suppress Mormon cricket outbreaks. (10,000 acres is somewhat less than one half of a township.)

Under this alternative, 5% carbaryl bait would be applied at 10.0 pounds (0.50 lb. active ingredient per acre). This application rate is 25% of the maximum EPA allowable rate for Mormon crickets on rangeland utilizing the carbaryl formulation preferred by APHIS. In accordance with EPA regulations, the insecticide may be applied at lower rates than those listed on the label.

Additionally, coverage would be reduced to less than the full area coverage, resulting in lesser effects to nontarget organisms. Within the designated treatment block, 5% to 25% of the area would be treated when aircraft are used. Within the designated treatment block, 1% to 5% of the area would be treated when ground application equipment is used. Thus, in a 10,000 acre treatment block, up to 2,500 acres of land might receive direct treatment with insecticide.

### **C. Insecticide RAATs Applications to Smaller Rangeland Blocks to Protect Specific Resources**

Under this alternative, APHIS would only treat blocks of land sized less than 10,000 acres to suppress Mormon cricket populations that immediately threaten biological, economic or recreational resources.

Under this alternative, 5% carbaryl bait would be applied at 10.0 pounds (0.50 lb. active ingredient) per acre.

Additionally, coverage would be reduced to less than the full area coverage, resulting in lesser effects to nontarget organisms. Within the designated treatment block, 25 to 75% of the area would be treated when aircraft are used. Within the designated treatment block, 5 to 25% of the area would be treated when ground application equipment is used. Thus, in a 9,999 acre treatment block, up to 7499 acres of land might receive direct treatment with insecticide.

## **IV. Methodologies**

These methodologies apply to alternatives B and C.

### **A. Land Administration**

As provided by the Plant Protection Act, APHIS would conduct Mormon cricket suppression programs on federal lands in response to requests of the administering agency. Over the past two decades, most of the suppression programs conducted by APHIS in Idaho have been on lands administered by BLM. Smaller amounts of National Forest System lands have been treated in some years. Although APHIS is authorized to treat state and private rangeland under the Plant Protection Act, the restrictions under which USDA must operate have deterred state and private land managers from seeking cooperative programs.

#### Bureau of Land Management

APHIS would treat severe Mormon cricket outbreaks on public lands administered by the BLM in Idaho when treatments are necessary and can be effective in minimizing private and public resource impacts. APHIS would evaluate site specific complaints, develop proposed treatment strategies consistent with the program and protection measures documented in this EA, and implement specific control or suppression actions. The Mormon cricket suppression program for BLM managed public lands in Idaho would be anticipated primarily for crop protection where private lands are within close proximity to BLM managed rangeland, and where economic damage is occurring or, is expected to occur. Treatments might also be necessary to protect high value rangeland resources, native plant community restoration projects, watersheds, recreational areas, communities, or other resources when threatened by severe infestations. All treatments would be designed to minimize the size of treated areas and would incorporate appropriate measures to protect resource values while maintaining treatment effectiveness. These suppression measures might be conducted either by ground or aerial applications.

Forest Service

APHIS would treat severe Mormon cricket outbreaks on National Forest System lands administered by FS in Idaho when treatments are necessary and can be effective in minimizing private and public resource impacts. APHIS would evaluate site specific complaints, develop proposed treatment strategies consistent with the program and protection measures documented in this EA, and implement specific control or suppression actions. The Mormon cricket suppression program for National Forest System lands in Idaho would be anticipated primarily for crop protection where private lands are within close proximity of National Forest System Lands, and where economic damage is occurring or, is expected to occur. Treatments might also be necessary to protect high value rangeland resources, native plant community restoration projects, watersheds, recreational areas, communities, or other resources when threatened by severe infestations. All treatments would be designed to minimize treated areas and would incorporate appropriate measures to protect resource values while maintaining treatment effectiveness. These treatment and suppression measures might be conducted either by ground or aerial applications.

### **B. Documenting Rangeland Mormon cricket Suppression Programs**

Requests for Mormon cricket suppression programs may come from federal land managers at any time. Complaints from private landowners and other persons who are threatened by Mormon cricket outbreaks on federal rangeland normally come when the outbreak is in progress. APHIS would document requests from federal land managers as they are received. APHIS would document complaints from private landowners and other persons with the protocol included as Appendix 4. APHIS would document evaluations, recommendations regarding treatments, and the conduct of treatments with the protocol included as Appendix 4. When APHIS would make a recommendation for a specific treatment block, it would be incumbent on the land manger to determine if the recommendation should be modified to:

Exclude Areas of Critical Environmental Concern (ACECs), Wilderness Areas (WAs), Wilderness Study Areas (WSAs), Designated Research Natural Areas (DRNAs), and other sensitive areas that APHIS had included in the proposed treatment block

Include additional critical areas that APHIS had not specified

Modify the percentage of the treatment block which receives direct treatment under RAATs

The land manager would certify that the proposed treatment, including any modifications, was consistent with the provisions of the EA.

### **C. Treatment Strategy**

The treatment block would consist of a parcel of rangeland infested by a Mormon cricket outbreak. The entire treatment block would not be treated. The surface area to which insecticides would be applied within a treatment block would range from 1% to 75% of the total block. No contiguous strip greater than 300 feet wide would ever be treated.

1. Basis for decision to treat

Mormon cricket populations which are not likely to threaten crops or cause significant damage to other resources would not be treated. Several factors are included in the threat assessments. The first level of assessment is the overall Mormon cricket population density. This is determined through field survey and is expressed in Mormon crickets per square yard. The age composition of a Mormon cricket population determines how much feeding damage would be done before the end of the growing season. The migratory status of Mormon cricket bands determines if they would invade areas where resources need to be protected. Treatments might be necessary to protect high value rangeland resources, native plant community restoration projects, watersheds, recreational areas, communities, or other resources when threatened by severe infestations.

2. Multiple applications

Normally, no area would be treated more than once during a Mormon cricket season. An exception could be if a Mormon cricket outbreak of exceptional proportions results in consumption of all the insecticidal bait which was applied to an area. This condition does occur when extremely large, dense bands of Mormon crickets traverse an area. No other scenarios would warrant multiple treatments. Any multiple treatments would be in accordance with insecticide label restrictions.

3. Methods of application

Insecticides would be applied in swaths which have a width determined for each treatment device (aircraft, truck-mounted spreader, or ATV-mounted spreader). For instance, an Ayres Turbine Thrush aircraft can deliver a 100 foot swath and an ATV-mounted bait spreader can deliver a 15 foot swath with carbaryl bait. Swaths delivered by aircraft are parallel to one another, and swaths delivered by ground equipment are dependent on the accessibility of the terrain. Distance between swaths allows computation of the percentage of the treatment block that actually receives direct treatment.

4. Protective Measures in Addition to Those Included in FY 2004 Guidelines (Appendix 1)

Appendix 1 includes protective measures which would be used in all APHIS Mormon cricket suppression programs, nationwide. Following are additional measures which would be implemented in Idaho.

Insecticide application rates would be reduced below EPA maximum allowable rates.

Treatment blocks would not receive full area coverage. 25% to 99% of each treatment block would not receive direct application of insecticide.

Aerial applications of carbaryl bait would not be made within 500 feet of water. APHIS would perform on-site examination of proposed treatment blocks to determine the presence of water.

Biological control agent release sites would be considered on an individual basis in consultation with the land manager to determine if insecticide might be used and/or how much buffer space should be allowed.

No aerial application would be made within ½ mile of crops enrolled in the Idaho Certified Organic Crop Program except on the request of the organic farm manager. APHIS may decline to apply any treatments which were requested inside this buffer area.

APHIS would post or continuously patrol treated areas to insure that nobody entered a treated area within the timeframe required by EPA for re-entry after treatment.

APHIS will make available a mechanism whereby individuals can request that federally managed rangelands around or adjacent to their private property would be excluded from treatments for Mormon crickets. The request form is available at:  
<http://www.agri.state.id.us/PDF/Plants/No%20spray%20request.pdf>

## **V. Affected Environment**

### **A. Description of Affected Environment**

It is not generally possible to predict the precise locations where Mormon cricket outbreaks and migrations will occur in any given year. In 2003, at least 340,000 acres were infested with heavy populations of Mormon crickets. Because APHIS cannot be sure where migration and spread of the infestations will occur, it is necessary to include an expanded area in the EA. The proposed suppression program area specified in this EA includes virtually all areas which might host outbreaks that would require suppression. The proposed suppression area is therefore, approximately 3,200,000 acres before subtraction of sensitive areas including buffers around water, and other sites. APHIS estimates that no more than 10% of this area would be included in treatment blocks and maximum area treated within a block would vary up to 25% under Alternative B and up to 75% under alternative C.

A large outbreak of Mormon crickets has been building for several years in the Boise foothills, the Danskin Mountain area and the Bennett Hills in Ada, Boise, and Elmore Counties. The outbreak now extends west and north into the watersheds of the Payette and Weiser Rivers in Gem, Payette, Valley and Washington Counties; and east into rangeland in Gooding and Camas Counties.

The outbreak in Owyhee County stretched from Murphy to Triangle in 2003. This outbreak includes heavy populations in mountainous areas around Silver City.

Another outbreak increased in intensity during 2003 in Oneida County near Malad. Elements of this outbreak extend north into Power, Bannock and Bingham Counties and are expected to extend into Franklin County in 2004.

2003 Outbreaks are depicted in the maps found in the 2003 Annual Report at:  
<http://www.agri.state.id.us/PDF/Plants/2003%20IDAHO%20GRASSHOPPER%20REPORT110703.pdf>

The proposed program area included in this EA includes federally managed rangeland in southern Idaho described as follows.

## **SOUTHEAST IDAHO**

### **Bannock County**

BLM managed rangeland south and east of Pocatello. Caribou National Forest Lands around Scout Mountain. Total area under consideration 180,402 acres.

### **Cassia County**

BLM managed rangeland and Sawtooth National Forest Lands in T10S R29E, T11S R29E, T12S R29E, T13S R29E, T14S R29E, and T15S R29E. Total area under consideration 83,894 acres.

### **Franklin County**

Caribou National Forest Lands west of Dayton and Oxford. BLM managed lands in the northern part of the county. Total area under consideration 30,955 acres.

### **Oneida County**

BLM managed rangeland in areas around Samaria Mountain, Quaking Mountain, and lands west of Malad City and Daniels. Caribou National Forest Land in the Malad Range and east of Daniels. Curlew National Grassland. Total area under consideration 406,446 acres.

### **Power County**

BLM managed rangeland in the Deep Creek Mountains, on the east side of Arbon Valley, and in the Sublett Range. Sawtooth National Forest Land in the Sublett Range. Total area under consideration 130,324 acres.

## **SOUTHWEST IDAHO**

### **Ada County**

BLM managed rangeland and Boise National Forest Lands on the Boise front. Total area under consideration 33,358 acres.

### **Boise County**

BLM managed rangeland near Horseshoe Bend and Banks. Boise National Forest Lands on Boise Ridge and Mount Heinen. Total area under consideration 197,915 acres.

### **Camas County**

BLM managed rangeland in the Bennett Hills. Total area under consideration 95,523 acres.

**Elmore County**

BLM managed rangeland north of Interstate 84. Boise National Forest Lands on Danskin Mountain, House Mountain, Krall Mountain, and Lava Mountain. Total area under consideration 615,937 acres.

**Gem County**

BLM managed rangeland north and south of Emmett. Total area under consideration 68,141 acres.

**Gooding County**

BLM managed rangeland in the Bennett Hills north of Interstate 84. Total area under consideration 246,959 acres.

**Owyhee County**

BLM managed lands west of the Boise Meridian, south of Highways 78 and 19, and north of the Poison Springs-Mud Flat-Juniper Mountain-Jordan Valley road. Total area under consideration 759,938 acres.

**Payette County**

BLM managed rangeland east of Payette. Total area under consideration 40,003 acres.

**Valley County**

Payette National Forest Lands on West Mountain. Total area under consideration 97,087 acres.

**Washington County**

BLM managed rangeland and Payette National Forest Lands in the Weiser watershed. BLM managed rangeland in the eastern portion of the county in T10N R1E, T10N R1W, T10N R2W, T11N R1E, T11N R1W, T11N R2W, T12N R1E, T12N R1W, T12N R2W, T13N R1E, T13N R1W. Total area under consideration 205,568 acres.

Maps of the described areas are in Appendix 2.

**General Description**

The area lies within the Interior Columbia Basin. Landforms consist primarily of valleys bordered by north-south running mountain ranges. Numerous impoundments on the Snake River and its tributaries serve multipurpose use. Irrigation systems serve agricultural areas throughout the region. Except for the Snake River and its major tributaries, streams in the area are generally intermittent. Major tributaries of the Snake River that traverse proposed program areas include: Portneuf River and Rock Creek in southeast Idaho and the Boise, Weiser and Payette Rivers in southwest Idaho.

Events during the Pleistocene shaped much of Idaho's landscape. In the southern portions of Idaho, repeated overflows of historic Lake Bonneville into the Snake River modified the Snake River Valley. In addition to the volcanic flows, sedimentary deposits including glacial till, outwash and loess, and valley fill, terraces, and scour features are

present over much of the area. Soils in the Snake River Plains developed from loess deposits and this has enabled these areas to become highly productive agricultural areas. Intensive livestock production systems such as dairies, feedlots, and trout farms create demand for feed which is partially supplied locally by alfalfa, corn, and wheat fields. Potatoes, sugar beets, and grain are other primary crops produced within the area. Annual cash farm receipts in Idaho average about \$1.7 billion each from crops and livestock. Total receipts from farm marketing in 2001 were \$3.8 billion.

Grassland and shrubland are present across the general area. Forest lands are present at higher elevations. Mormon cricket treatments would occur only in grass and shrublands, not in forests.

The plains and foothills are semi-arid sagebrush steppe. Summers are hot and winters are moderate. Average annual temperature is 40 to 55 °F. Total annual precipitation averages 5 to 20 inches; almost no rain falls during the summer months. Examples of probability of 0.50" of precipitation in a 24 hour period April 15 to August 15 (Western Regional Climate center, <http://www.wrcc.dri.edu>) are:

Cambridge	0 to 5%
Mountain Home	0 to 2%
Malad	0 to 4%
Silver City	0 to 9%

The rangelands are utilized for cattle and sheep grazing. They provide habitat for native and introduced game and non-game animal species. They are in an accelerated state of ecological change due to invasion by exotic plant species, changes in fire patterns, and intervention by humans.

Elevation and topography within the overall area vary considerably, from 2,000 to near 10,000 feet, and from flat plains to steep mountain ranges. Treatments would occur on mountains, foothills and flatlands, usually near cropland and hayfields. Some treatments could occur on remote blocks of rangeland where critical forage or revegetation projects or recreational resources are threatened by Mormon crickets.

BLM manages rangelands within the upper and lower Snake River Districts. FS manages rangelands within Boise, Caribou, and Payette National Forests and the Curlew National Grasslands

Larger towns or cities near the federally managed rangelands include Pocatello, Mountain Home, and Boise.

Areas specifically excluded are:

Those parts of Valley and Washington Counties designated by U.S. Fish and Wildlife Service (FWS) as habitat occupied by Northern Idaho Ground Squirrel, *Spermophilus brunneus brunneus*. (Northern Idaho ground squirrel is a newly

listed Threatened Species. There is no similar federally listed threatened species for which a biological assessment and biological opinion have been completed under the Mormon cricket suppression program. APHIS believes it is prudent to await the outcome of the current biological assessment before proposing protection measures for this species.)

Those rangeland areas in the watersheds which drain into the Snake River downstream from Brownlee Dam. APHIS has not completed consultation with National Oceanic and Atmospheric Administration Fisheries regarding measures to protect endangered salmon and steelhead. Therefore APHIS would not include watersheds which are involved with those species.

All ACECs, WAs, WSAs, DRNAs will be excluded from consideration for treatments, except the Boise Front SRMA/ACEC.

Other areas which are specifically identified in this EA because of their association with sensitive species or other sensitive sites.

## **B. Site-Specific Considerations**

### **1. Human Health**

The suppression program would be conducted on federally managed rangelands that are not inhabited by humans. Human habitation may occur on the edges of the rangeland. Most habitation is comprised of farm or ranch houses, but some rangeland areas may have suburban developments or “ranchettes” nearby. Average population density in rural areas of Idaho is 6.3 persons per square mile. Recreationists may use the rangelands for hiking, camping, bird watching, hunting, falconry or other uses.

Individuals with allergic or hypersensitive reactions to insecticides may live near or may utilize rangelands in the proposed suppression program area.

Entomophobic individuals may live near or may utilize rangelands in the proposed suppression area. Entomophilic individuals may live near or utilize rangelands in the proposed suppression area.

Some rural schools may be located in areas near rangeland which could be subject to treatment.

### **2. Nontarget Species**

Nontarget species within the suppression program area include terrestrial vertebrate and invertebrate animals, aquatic organisms, and terrestrial plants (both native and introduced).

Invertebrate organisms of special interest include biocontrol agents and pollinators. Land managers and others have released and managed biocontrol agents including insects and pathogens on many species of invasive plants within and near the suppression program area. These biocontrol agents are important in decreasing the overall population or the

rate of reproduction of some species of undesirable rangeland plants, especially exotic invasive weeds.

Pollinators including insects and other organisms occur within and near the suppression program area. Pollinators include managed exotic and native insect species such as honey bees, leafcutter bees, and alkali bees which are commercially valuable for agriculture. Other species of insects and other animals pollinate native and exotic plants and are necessary for the survival of some species.

Vertebrates include highly visible introduced and native mammalian species such as cattle, sheep, horses, mule deer, elk, pronghorn, coyotes and wolves as well as smaller animals like rabbits, mice, gophers and bats. Birds comprise a large portion of the vertebrate species complex, and they also include exotic and native species. Some exotic game birds, like pheasant and partridge, have been deliberately introduced into the area, and other species such as starlings and pigeons have spread from other loci of introduction. Sage obligate bird species, typified by sage grouse, are present in much of the area. Various reptiles and amphibians are also present. Many of the herbivorous vertebrate species compete with Mormon crickets for forage. Many of the vertebrate species utilize Mormon crickets and other insects as a food source. There is special concern about the role of Mormon crickets as a food source for sage grouse, sharptail grouse, and other bird species.

The proposed suppression area contains a vast variety of terrestrial invertebrates, primarily insects and other arthropods. They include species which compete with Mormon crickets and some which prey on Mormon crickets. In turn Mormon crickets may prey opportunistically on other invertebrates.

Aquatic organisms within the suppression area include plants and vertebrate and invertebrate animals. Some species of fish utilize Mormon crickets as a significant food source during some parts of the year.

A diverse complement of terrestrial plants occurs within the proposed suppression area. Many such as rush skeletonweed, purple loosestrife, spotted and diffuse knapweed, downey brome, and leafy spurge are invasive weeds. Native plants such as sagebrushes, bitterbrush, and various grasses provide forage and shelter for animal species and help stabilize the soil against erosion.

Biological soil crusts, also known as cryptogamic, microbiotic, cryptobiotic, and microphytic crusts, occur within the proposed suppression area. Biological soil crusts are formed by living organisms and their by-products, creating a crust of soil particles bound together by organic materials. Crusts are predominantly composed of cyanobacteria (formerly blue-green algae), green and brown algae, mosses, and lichens. Liverworts, fungi, and bacteria can also be important components. Crusts contribute to a number of functions in the environment. Because they are concentrated in the top 1 to 4 mm of soil, they primarily effect processes that occur at the land surface or soil-air interface. These include soil stability and erosion, atmospheric N-fixation, nutrient contributions to plants, soil-plant-water relations, infiltration, seedling germination, and plant growth.

Federally listed threatened and endangered species which might occur in or near the proposed suppression area include:

Gray wolf (Ada, Bannock, Boise, Camas, Cassia, Elmore, Franklin, Gem, Gooding, Oneida, Owyhee, Payette, Power, Valley, Washington),

Canada lynx (Boise, Camas, Elmore, Franklin, Valley),

Bald eagle (Ada, Bannock, Boise, Camas, Cassia, Elmore, Franklin, Gem, Gooding, Oneida, Owyhee, Payette, Power, Valley, Washington ),

Banbury Springs lanx (Gooding),

Bliss Rapids snail (Cassia, Elmore, Gooding, Owyhee, Power)

Snake River physa (Cassia, Elmore, Gooding, Owyhee),

Utah valvata snail (Bannock, Cassia, Gooding, Power),

Idaho springsnail (Elmore, Gooding, Owyhee),

Bull trout (Ada, Boise, Camas, Elmore, Gem, Owyhee, Payette, Valley, Washington),

Northern Idaho ground squirrel (Valley, Washington)

Areas where proposed critical habitat for bull trout may be within or near the proposed suppression area include parts of Ada, Boise, Camas, Elmore, Gem, Payette, Valley and Washington Counties.

Slickspot peppergrass was proposed for federal endangered species status in Ada, Boise, Elmore, Gem, Owyhee, and Payette counties. The proposal was withdrawn January 22, 2004, and a Candidate Conservation Management Agreement has been developed.

Discussion of these species is included in VI.B.7

Many other species are accorded special status by federal land managers or by the State of Idaho. Data about these species are available from the respective land managers or at <http://www2.state.id.us/fishgame/info/cdc/cdc.htm>.

### 3. Socioeconomic Issues

Local economies in the areas near most proposed suppression areas are driven primarily by agricultural production, processing, and marketing concerns. Major employers in southern Idaho include Albertsons, Inc.; Fred Meyer, Inc.; Hewlett-Packard Co.; Idaho Power Co.; J.R. Simplot Co.; Micron Technology, Inc.; Potlatch Corp; St. Alphonsus Regional Medical Center; St. Luke's Regional Medical Center; and Wal-Mart. These businesses roughly divide into those which have headquarters, factories or service centers

located in the Boise metropolitan area and those which support agricultural and natural resource enterprises or provide retail trade in the rural areas.

Livestock enterprises include rangeland grazing by cattle and sheep, feedlots for beef, and concentrated dairy operations. Local processing which adds value to livestock production systems includes meat packing houses, and cheese plants.

Crop growers in areas near proposed suppression areas grow feed for the dairies and feedlots. This includes alfalfa and corn. They also grow potatoes, sugarbeets, wheat, barley, sweet corn, beans, and a variety of other crops. Potato and sugarbeet processing plants add value in several of the rural communities. In some areas near the proposed suppression area, growers produce seed of flowers and various forage, feed, and vegetable crops. The seed crops are often of exceptionally high value per acre compared to crops for consumption.

Acreage in organic production has increased in the area near proposed suppression areas. There were 106,058 acres registered in organic production in Idaho in 2001. This includes feed for organic dairies and various other organic crops. Individuals have been identified who produce and market beef which they call organic on rangeland which may be within the proposed suppression areas.

Beekeepers maintain hives to produce honey and other bee products on land which is included in the proposed treatment area as well as on land located near the proposed treatment area. Seed crops and fruit crops rely on pollination from bees which may live or forage on or near proposed suppression areas.

The general public uses federally managed rangelands in the proposed suppression area for a variety of recreational purposes including hiking; camping; wildlife, bird, and insect collecting and watching; hunting; falconry; shooting; plant collecting; rock and fossil collecting; artifact collecting; sightseeing; and dumping. Members of the general public traverse rangelands in or near the proposed suppression area on foot, horseback and other beasts of burden, all terrain vehicles, bicycles, motorcycles, four-wheel drive vehicles, snowmobiles, aircraft, and balloons.

Artificial surfaces in or near the proposed suppression area include the walls and roofs of buildings, painted finishes on automobiles, trailers, recreational vehicles, and road signs. See 2002 EIS pp 71-72.

Esthetic values of the natural environment in the suppression area include the views, vistas, diversity of the biota, and the opportunity to commune with nature in isolated settings. Many stakeholders have expressed extremely strong opinions regarding the esthetics of the natural environment.

#### 4. Cultural Resources and Events

Cultural and historical sites include locations and artifacts associated with Native Americans, explorers, pioneers, religious groups and developers. Native American

petroglyphs have been discovered in several areas within the proposed suppression area. Artifacts from knapping occur within the proposed suppression area. Elements of the Oregon and California Trails transect portions of the proposed suppression area, and monuments have been erected in several places. Museums, displays and structures associated with mining, logging, and irrigation development exist in areas near the proposed suppression area.

#### 5. Special Considerations for Certain Populations

##### a. Executive Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order (E.O.) 12898, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, was signed by President Clinton on February 11, 1994 (59 *Federal Register* (FR) 7269). This E.O. requires each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Consistent with this E.O., APHIS would consider the potential for disproportionately high and adverse human health or environmental effects on minority populations and low-income populations for any of its actions related to Mormon cricket suppression programs.

Population makeup in Idaho (U.S. Census Bureau 2000) is 90.9% White. Hispanic or Latino of any race is the next most numerous group comprising 7.8 %. Other identifiable groups include Black or African American 0.4%, American Indian and Alaska Native 1.4 %, Asian 1.0%, and Native Hawaiian and Other Pacific Islander 0.1%. The proposed suppression area is relatively reflective of the overall state population breakdown. Of the minority groups, Hispanic and Asian appear to be the groups with most involvement in agriculture. Hispanic workers are often engaged in production and processing of crops. Shepherding is a profession which currently engages persons of Peruvian nationality or descent. Persons of Asian descent are frequently involved in crop production and processing.

Figures for Idaho put 8.3% of the families and 11.8% of the individuals in the state below the poverty level in 1999. Median family income was \$43,490 and per capita income was \$17,841 in 1999. The proposed suppression area is relatively reflective of the overall state income breakdown.

##### b. Executive Order No. 13045, Protection of Children from Environmental Health Risks and Safety Risks

The increased scientific knowledge about the environmental health risks and safety risks associated with hazardous substance exposures to children and recognition of these issues in Congress and Federal agencies brought about legislation and other requirements to protect the health and safety of children. On April 21, 1997, President Clinton signed E.O. 13045, Protection of Children From Environmental Health Risks and Safety Risks

(62 FR 19885). This E.O. requires each Federal agency, consistent with its mission, to identify and assess environmental health risks and safety risks that may disproportionately affect children and to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. APHIS has developed agency guidance for its programs to follow to ensure the protection of children (USDA, APHIS, 1999).

Individuals under 18 years of age comprise 30.6% of the population in Idaho. There is no reason to believe that the population age structure near the proposed treatment areas are different than the surrounding area.

## **VI. Environmental Consequences**

Each alternative described in this EA potentially has adverse environmental effects. The general environmental impacts of carbaryl insecticide applied to rangeland for grasshopper and Mormon cricket suppression are discussed in detail in the 2002 EIS. The specific impacts of the alternatives are highly dependent upon the particular action and location of infestation. The principal concerns associated with the alternatives that include insecticide application are: (1) the potential effects of the two pesticide options on human health (including subpopulations that might be at increased risk); and (2) impacts of pesticides on nontarget organisms (including threatened and endangered species).

Risk analysis for human health is discussed in the 2002 EIS pp B-1 to B-6. Nontarget species risk analysis is discussed in the 2002 EIS pp B-6 to B-10.

### **A. Environmental Consequences of the Alternatives**

Site-specific environmental consequences of the alternatives are discussed in this section.

#### **1. No Action Alternative**

Under this alternative, APHIS would not fund or participate in any program to suppress Mormon crickets on federally managed rangeland. If APHIS does not participate in any Mormon cricket suppression program, Federal land management agencies, State agriculture departments, local governments, or private groups or individuals, may not be able to effectively control outbreaks in a coordinated effort. In these situations, Mormon cricket outbreaks could develop and spread unimpeded. See 2002 EIS pp. 29-30 for general consequences.

#### **Human health**

Very dense bands of Mormon crickets can make roadways slick. It is not known whether any traffic accidents have been directly attributable to this phenomenon in Idaho, but public safety authorities posted warning signs because of Mormon crickets on Highway 55 between Eagle and Horseshoe Bend during a Mormon cricket outbreak in 2002 and 2003. Mormon crickets also created slick road conditions on Interstate 84 at milepost 71

in 2002. There is some risk of personal injury or death due to automobile accidents caused by Mormon crickets on highways and roads.

A significant portion of the American public has a negative response to insects and some persons may be clinically diagnosed as Entomophobic. Mormon crickets are especially vexatious because of their large size, population densities and migratory habits. Residents in areas bordering rangeland in the Boise foothills have expressed strong negative psychological reactions to Mormon cricket infestations in 2003 and previous years.

Persons who are entomophilic may have an reduced levels of concern and increased enjoyment from experiencing the outbreaks for recreational or scientific purposes.

Other stakeholders have indicated that they are opposed to any treatments on public rangelands because they believe treatments would disrupt ecosystems, create human health problems or give unfair economic advantage to agricultural interests. The anxiety levels of these stakeholders may be reduced if APHIS does not suppress Mormon cricket outbreaks.

If APHIS does not treat Mormon cricket outbreaks on rangeland, there is an increased probability of additional insecticidal treatments on crops which would be invaded by Mormon crickets. This would result in increased exposure of farm workers, including members of minority populations, to insecticides with higher toxicity than carbaryl.

#### Non-target species

An abundant supply of Mormon crickets and other insects would be available as a food source for insectivorous animals. This includes birds and other animals which have been accorded sensitive species status by land managers and others.

Mormon crickets in unsuppressed outbreaks would consume agricultural and nonagricultural plants. The damage caused by Mormon cricket outbreaks could also pose a risk to rare, threatened, or endangered plants that often have a low number of individuals and limited distribution. Plants can be killed or weakened by Mormon cricket feeding. Some Mormon crickets feed on seeds, so future generations of plants could be threatened.

Loss of plant cover would occur due to consumption by Mormon crickets. Nesting and cover habitat may be degraded for birds and other wildlife. The herbaceous understory is important to nesting success by sage grouse (Connelly, et. al. 1994).

Rangeland which has been overgrazed by Mormon crickets is more susceptible to invasion by nonnative plant species. Plant cover may protect the soil from the drying effects of the sun. The plant root systems which hold the soil in place may be weakened, leading to increased rates of erosion.

Mormon crickets are fairly omnivorous creatures. In Idaho, they do not only feed on live plants, but they also commonly feed on cow manure and the bodies of recently killed animals including snakes, toads and birds. These insects are well known to be cannibalistic and to feed on other insects. They may pose a risk to fledgling birds, as well. La Rivers (1944) reported a nest of half-grown Brewers sparrows devoured by a swarm of crickets. Mormon crickets feed on fungi (Pfadt 1994) so may pose a threat to biological soil crusts.

If APHIS does not participate in any Mormon cricket suppression programs, local governments, or private groups or individuals may attempt to conduct widespread Mormon cricket programs. Without the technical assistance and program coordination that APHIS can provide to Mormon cricket programs, it is possible that a large amount of insecticides, including those APHIS considers too environmentally harsh, could be applied, reapplied, and perhaps misapplied in an effort to suppress or even locally eradicate Mormon cricket populations. It is not possible to accurately predict the environmental consequences of the No Action alternative because the type and amount of insecticides that could be used in this scenario are unknown. However, APHIS is aware that in 2002 private parties applied furadan, malathion, carbaryl, and dimethoate for grasshopper control in Idaho.

Rangeland fires may be set by persons who desire suppression of the Mormon crickets. Action of this type has not been documented, but individuals have threatened to set fires to destroy Mormon cricket outbreaks that are not controlled.

#### Socioeconomic issues

There is a risk that Mormon cricket outbreaks on rangeland would decrease the availability of forage for cattle and sheep. If sheep and cattle grazing become unprofitable, there may be disproportionate impact on the sheepherding and cattle raising professions. Sheepherders often belong to minority population groups.

Unchecked movement of Mormon cricket outbreaks into crops would result in crop loss and additional expenditures for insecticidal control in the crop fields. Organic farmers may suffer significant losses if Mormon cricket outbreaks are not controlled on rangeland and emigrate to organic cropland.

Stakeholders have suggested that the federal government should compensate farmers for losses incurred when Mormon crickets emigrate from public rangeland into crops. USDA Risk Management Agency currently offers multiperil crop insurance which may compensate for losses due to insects if the policy holder utilizes appropriate pest control measures, but those measures fail. Normally, payment of such claims is on the basis of failure of pest control spray practices due to untimely rainfall or some other natural event. USDA Farm Service Agency may be able to offer low interest loans when disasters are declared for various reasons which can include grasshopper/Mormon cricket outbreaks. Skold and Davis (1995) proposed a rangeland grasshopper insurance program. No authority currently exists for such a program.

#### Cultural resources and events

Mormon crickets were a significant source of protein for indigenous North American people. They are no longer used in this country as a human food source except as a novelty or recreational experience. They are used for fish bait and for pet food. Selection of the No Action alternative would result in their abundant availability for these purposes.

Mormon cricket populations at outbreak levels on rangeland would decrease the recreational satisfaction of some people utilizing rangeland resources, primarily those who do not like insects. Mormon cricket populations at outbreak levels on rangeland would increase the recreational satisfaction of some people utilizing rangeland resources, primarily those who enjoy spectacular biological phenomena.

#### Artificial Surfaces

Grasshoppers have been reported as recently as 2002 (in Nebraska) to have eaten the paint off houses. There is a possibility that artificial surfaces might suffer some damage due to chewing by Mormon crickets.

### **2. Insecticide RAATs Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas (Preferred alternative)**

Under this alternative, APHIS would provide some suppression of Mormon cricket outbreaks throughout areas where extraordinary population densities occur on federally managed rangeland. The goal of the program would be to reduce the Mormon cricket populations from their high, outbreak levels to somewhat more normal levels without waiting for natural factors to diminish the population.

At the request of the federal land manager, treatment blocks of 10,000 acres or more would be defined. Carbaryl 5% bait would be applied by ground or by air to a portion of the treatment block at a rate of 10 lbs per acre. Direct application of the bait would be made to 5% to 25% of the treatment block when treatment was by air, or direct application would be made to 1% to 5% of the treatment block when treatment was by ground rigs. The remainder of the treatment block would be left untreated to serve as a reservoir for beneficial species that might be impacted by the carbaryl bait.

APHIS has had success suppressing Mormon crickets in Idaho by applying 100 foot wide swaths 1000 feet apart on rangeland. This technique is successful and desirable because bands of Mormon crickets migrate across the landscape and encounter the bait. They are extremely susceptible to the bait and are readily killed when they feed on it or when they cannibalize other Mormon crickets which have already succumbed to the insecticide. Other crawling insects are not as mobile as the Mormon crickets and are not as likely to move into a baited area. Most flying insects are not attracted to and, therefore, are not susceptible to the bait.

#### Human health

Carbaryl is of moderate acute oral toxicity to humans. The mode of toxic action of carbaryl occurs through inhibition of acetyl cholinesterase (AChE) function in the

nervous system. This inhibition is reversible over time if exposure to carbaryl ceases. The Environmental Protection Agency (EPA) has classified carbaryl as a possible human carcinogen (EPA 1993). However, it is not considered to pose any mutagenic or genotoxic risk.

Human exposure to insecticides would occur. Exposures and effects are discussed in the 2002 EIS pp. 39-40, 50, B10-B13, B22-B25, B51-B53. Potential exposures of the general public to carbaryl are infrequent and of low magnitude under this alternative and would probably be equivalent to the Insecticide Applications to Smaller Rangeland Blocks to Protect Specific Resources Alternative. These low exposures to the public pose no risk of direct toxicity, carcinogenicity, neurotoxicity, genotoxicity, reproductive toxicity, or developmental toxicity.

Personnel working on the suppression program would be exposed during handling, loading and application of the insecticides. Implementation of the Treatment Guidelines (Appendix 1.) would minimize public exposure and protect workers from harmful exposure. The potential for adverse effects to workers is negligible if proper safety procedures are followed, including wearing the required protective clothing. Carbaryl has been used routinely in other programs with no reports of adverse health effects to workers. Therefore, routine safety precautions are expected to provide adequate worker health protection. Exposure would probably be equivalent to the Insecticide Applications to Smaller Rangeland Blocks to Protect Specific Resources Alternative.

Individuals with hypersensitivity to the insecticides might be affected. APHIS would offer to compile a list of persons who wish to be listed and would either avoid treating areas near their homes or would contact them prior to treatment. Hypersensitive individuals would be advised to avoid treatment blocks. Exposure would probably be equivalent to the Insecticide Applications to Smaller Rangeland Blocks to Protect Specific Resources Alternative.

Some stakeholders have indicated that they are opposed to any treatments on public rangelands because they believe treatments would disrupt ecosystems, cause human health problems or provide an unacceptable advantage to agricultural interests. The anxiety levels of these stakeholders may be increased by adoption of this alternative versus the No Action Alternative. Their anxiety level would be probably be equivalent to Insecticide Applications to the Smaller Rangeland Blocks to Protect Specific Resources Alternative.

Pesticide spills could expose individuals to excessive levels of insecticide. APHIS maintains spill kits and insures that program personnel are familiar with procedures to mitigate effects associated with a spill. Spills of bait are simple to manage compared to spills of liquid insecticides. Chances of a spill would be probably be equivalent to Insecticide Applications to Smaller Rangeland Blocks to Protect Specific Resources Alternative.

Entomophobic persons may have reduced anxieties vs. the No Action Alternative.  
Entomophilic persons may have increased anxieties vs. the No Action Alternative.

#### Non-target species

##### Aquatic

Carbaryl has the potential to affect animals in aquatic ecosystems. Should carbaryl enter water, there is the potential to affect the aquatic invertebrate assemblage, especially amphipods. Field studies with carbaryl concluded that there was no biologically significant effect on aquatic resources, although invertebrate downstream drift increased for a short period after treatment due to toxic effects (Beyers *et al.* 1995). Carbaryl is moderately toxic to most fish (Mayer and Ellersieck 1986). Fish are not likely to be affected at any concentrations that could be expected under this Alternative. Although the risk of carbaryl contamination of water must be rated higher than under the No Action Alternative, untreated buffer areas around all water would prevent entry of toxic concentrations of carbaryl into the water. Insecticide concentrations in runoff waters are addressed in the EIS pg C-6. Under worst case scenarios, runoff from a storm intensity of 1 inch resulted in negligible concentration of insecticide in the runoff water. Probability charts generated by Western Regional Climate Center show that storm intensities of half that magnitude are extremely rare in the proposed project area.

##### Mammals and birds

Stakeholders have expressed concern about chronic and acute toxicity of insecticides to birds on rangeland. These concerns were well founded for Mormon cricket control programs conducted throughout much of the 20<sup>th</sup> Century. Originally, inorganic insecticides were used, with a typical bran bait formulation incorporating 8 pounds of liquid sodium arsenite into 100 pounds of bran (Cowan 1929). For a brief span in the mid-20<sup>th</sup> century, synthetic organochlorine insecticides such as chlordane, toxaphene, dieldrin and aldrin came into use. These insecticides would accumulate in the birds or other animals which consumed poisoned Mormon crickets, eventually leading to a toxic dosage level in the insectivores or their predators. USDA discontinued their recommendation for using organochlorine insecticides on Mormon crickets in 1965 (McEwen *et al.* 1972). The organochlorine insecticides were replaced with the organophosphate and carbamate insecticides. Certain of these are highly toxic to birds. Blus *et al.* (1989) determined that sage grouse die-offs in Southeastern Idaho could be attributed to methamidophos and dimethoate treatments to agricultural fields used by the sage grouse. Martin *et al.* (2000) determined that furadan treatments depressed cholinesterase levels in birds in study areas. APHIS would not use insecticides (such as methamidophos, dimethoate, or furadan) that are highly toxic to birds or other terrestrial wildlife in the proposed suppression area.

Carbaryl is of moderate acute oral toxicity to mammals (McEwen *et al.* 1996a). Carbaryl applied at the proposed rate is unlikely to be directly toxic to upland birds, mammals, or reptiles. Carbaryl is not subject to significant bioaccumulation due to its low water solubility and low octanol-water partition coefficient (Dobroski *et al.*, 1985). Field studies have shown that carbaryl applied as either ultra-low-volume (ULV) spray or bait at conventional rates posed little risk to killdeer (McEwen *et al.* 1996a), vesper

sparrows (McEwen *et al.* 1996a; Adams *et al.* 1994), or golden eagles (McEwen *et al.* 1996b) in the treatment areas. AChE inhibition at 40 to 60 percent can affect coordination, behavior, and foraging ability in vertebrates. Multi-year studies conducted at several grasshopper treatment areas have shown AChE inhibition at levels of no more than 40 percent with most at less than 20 percent (McEwen *et al.* 1996a). The risk of acute or chronic toxicity to birds or mammals would be negligible under this option.

Stakeholders have strongly expressed concern regarding the reduction of insects as a food source for rangeland insectivores, especially sage grouse and sharptail grouse chicks. In this alternative, the application rates chosen for the insecticide is reduced from the maximum rate allowed by EPA. Additionally only 1% to 25% of a treatment block would receive direct application. This reduction in rate and coverage along with the use of the carbaryl bait which is more selective for Mormon crickets than for most other species leaves alternative insect fauna for foraging insectivores (Paige and Ritter 1999). Because APHIS would only treat significant outbreak populations, numbers of Mormon crickets surviving the treatment can provide ample nourishment for the insectivores. Additionally, Martin *et. al.* (2000) and Howe, *et. al.* (2000) found that Canadian grassland and Idaho shrub steppe bird species were able to make adaptive changes when insecticidal spray reduced the numbers and changed the composition of insect prey species. Prey available to insectivores would be somewhat less than under this alternative than under the No Action Alternative.

### Plants

Versus the No Action Alternative, Mormon cricket feeding damage would be reduced on rangeland plants, including desirable and undesirable plants, and to crops near rangeland.

Reduction of the Mormon cricket feeding damage may be viewed as having both negative and positive impacts. Mormon crickets feed on invasive weeds such as rush skeletonweed. Limiting the damage Mormon crickets do to invasive weeds would be perceived by most observers as a negative impact. Limiting the damage Mormon crickets do to desirable plants would be perceived by most observers as a positive impact.

Decreasing the amount of foliage consumed by Mormon crickets can make more forage available to other herbivores which may be more highly valued by stakeholders. Livestock and game animals and non-game compete with Mormon crickets for forage and shelter in rangeland. This alternative would make more forage and shelter available for other species versus both other alternatives.

There are no known studies indicating that insecticides may effect species composition of intact biological soil crusts (US Department of the Interior 2001).

### Insects

Carbaryl would most likely affect nontarget insects that consume carbaryl bait within the Mormon cricket treatment area. Field studies have shown that affected insect populations can recover rapidly after spray or bait treatments and generally have suffered no long-term effects, including some insects that are particularly sensitive to carbaryl, such as

bees (Catangui *et al.* 1996). The use of carbaryl in bait form generally has substantial environmental advantage over liquid insecticide applications: bait is easier than liquid spray applications to direct toward the target area, bait is more specific to Mormon crickets, and bait affects fewer nontarget organisms than sprays (Quinn 1996).

Nontarget insect species which would be put at risk by treatments under this alternative include non-native biological control agents and pollinators. The level of risk would be greater than the No Action Alternative. The majority of the non-native biological control agents in the proposed suppression area result from release programs carried out by land management agencies and others. The Nez Perce Biological Control Center in Lapwai provides database service which allows managers to report locations of biocontrol releases and the status of biocontrol agent populations. APHIS would consult with land managers and the Nez Perce Biological Control Center to determine the location and status of biological control agent populations and would select treatment options (including buffering areas) which minimize negative impacts on the populations.

The most widespread, managed, non-native pollinator in the proposed suppression area is the honeybee. Honeybees are found throughout and near the proposed suppression area. APHIS would provide beekeepers with notification of the suppression program and would conduct surveys to detect beeyards in or near proposed treatment blocks. Risk to honeybees would be somewhat greater than the risk under the No Action Alternative, but utilization of carbaryl bait would pose little risk to honeybees.

Managed native pollinators include leafcutter and alkali bees. These species might be found in the proposed treatment area, but they are usually encountered in crop areas adjacent to the rangeland. APHIS would conduct surveys and would consult with private landowners to determine if managed native pollinators are near proposed treatment blocks. Risk to managed native pollinators would be somewhat higher than the risk under the No Action Alternative, but utilization of carbaryl bait on rangeland poses little threat to managed native pollinators.

Unmanaged native pollinators include a vast array of insects and other animals. In general, the insect fauna within this group is more susceptible to insecticide sprays than to the treatment option selected for the proposed program. To maximize the protection of these organisms, APHIS would select carbaryl bait to suppress Mormon cricket outbreaks. Risk to unmanaged native pollinators would be somewhat greater than the risk under the No Action Alternative, but the large untreated areas would provide refugia.

#### Insect biodiversity

There might be a temporary decrease in insect biodiversity within treatment blocks. However, the large areas left untreated within treatment blocks preserve biodiversity to a great extent.

#### Spills

Pesticide spills could expose wildlife to excessive levels of insecticide. APHIS maintains spill kits and insures that program personnel are familiar with procedures to mitigate effects associated with a spill. A spill of carbaryl bait is relatively easy to contain and clean up compared to liquid insecticides. The risk of pesticide spills is roughly equivalent to the risk under Insecticide Applications to Smaller Rangeland Blocks to Protect Specific Resources Alternative.

#### Socioeconomic issues

The risk that Mormon cricket outbreaks on rangeland would decrease the availability of forage for cattle and sheep is less than under Insecticide Applications to Smaller Rangeland Blocks to Protect Specific Resources because populations would be reduced on rangeland.

There would be reduced risk of major unchecked movement of Mormon crickets into traditional or organic crops resulting in crop loss and additional expenditures for insecticidal control in the crop fields because the overall Mormon cricket population would be reduced.

#### Cultural resources and events

The availability of Mormon crickets for fish bait and other human uses would be reduced from outbreak levels to more normal levels. Persons using rangelands for recreation would respond to Mormon crickets as they do under normal conditions versus under outbreak conditions.

#### Artificial surfaces

Carbaryl can damage some painted surfaces. Automotive and sign finishes are susceptible to damage by carbaryl, and automobile or sign owners could suffer economic loss repairing cosmetic damage. APHIS would not apply bait to un-abandoned vehicles in treatment blocks. APHIS would consult with land managers to insure that Native American petroglyphs are excluded from direct treatment if they occur within treatment blocks. The probability of damage to artificial surfaces by the treatments under this alternative is negligible. Probability of damage to artificial surfaces by Mormon crickets would be reduced versus the No Action Alternative.

### **3. Insecticide RAATs Applications to Smaller Rangeland Blocks to Protect Specific Resources**

Under this alternative, APHIS would provide significant suppression of Mormon cricket outbreaks in limited areas on federally managed rangeland to protect specific resources. Overall suppression of large outbreaks would not be a goal of the program, and outbreaks would persist until natural factors depressed the population.

At the request of the federal land manager, treatment blocks less than 10,000 acres would be defined in areas where crops, high value rangeland resources, watersheds, recreational resources, communities, or other resources are threatened by bands of Mormon crickets.

Carbaryl 5% bait would be applied by ground or by air to a portion of the treatment block at a rate of 10 lbs per acre. Direct application of the bait would be made to 25% to 75% of the treatment block when treatment was by air, or direct application would be made to 5% to 25% of the treatment block when treatment was by ground rigs. The remainder of the treatment block would be left untreated to serve as a reservoir for beneficial species that might be impacted by the carbaryl bait.

APHIS has had success suppressing Mormon crickets near crops and other resources by applying 100 foot wide swaths 200 feet apart on rangeland in several western states. This technique is successful because Mormon crickets are extremely susceptible to the bait and are readily killed when they feed on it or when they cannibalize other Mormon crickets which have already succumbed to the insecticide.

#### Human health

Human exposure to insecticides would probably be equivalent to the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

Exposure of personnel working on the suppression program probably be equivalent to the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

Exposure of hypersensitive individuals would probably be equivalent to the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

Anxiety levels of stakeholders who oppose insecticidal treatments would probably be equivalent to the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

Chances of a pesticide spill would probably be equivalent to the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

Entomophobic persons may have reduced anxieties vs. the No Action Alternative.  
Entomophilic persons may have increased anxieties vs. the No Action Alternative.

#### Non-target species

##### Aquatic

Risk of toxic concentrations of carbaryl entering water would be the same as the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

##### Mammals and birds

The risk of acute or chronic toxicity to birds or mammals would be negligible under this option. Insect prey available to insectivores would be less within the treatment blocks

under this alternative than under the No Action Alternative or the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

#### Plants

Mormon cricket feeding damage would be reduced to a greater extent on rangeland plants, including desirable and undesirable plants, and to crops near rangeland within the treatment blocks under this alternative. However, Mormon cricket feeding damage would not be reduced on rangeland plants, including desirable and undesirable plants to the same extent as outside the treatment blocks as would be the case under the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon Cricket Populations in Generalized Areas Alternative. This alternative would make more forage and shelter available for other species within the treatment blocks, but not outside the treatment blocks compared to the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

#### Insects

The level of risk would be greater within the treatment blocks than under the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

#### Biodiversity

There might be a greater decrease in insect biodiversity within treatment blocks under this alternative versus the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

#### Spills

The risk of pesticide spills would be roughly equivalent to the risk under the Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative.

#### Socioeconomic issues

The risk that Mormon cricket outbreaks on rangeland would decrease the availability of forage for cattle and sheep is higher than under Insecticide Applications to Large Rangeland Blocks to Suppress Mormon cricket Populations in Generalized Areas Alternative because outbreak populations would persist on rangeland.

There would be reduced risk of unchecked movement of Mormon cricket outbreaks into traditional or organic crops resulting in crop loss and additional expenditures for insecticidal control in the crop fields. However, proper timing and possible allocation of extensive personnel and time resources would be required under this alternative because it would be necessary to identify and treat the areas around the protected resources as the crickets approach them.

### Cultural resources and events

The availability of Mormon crickets for fish bait and other human uses would be greatly reduced in treatment blocks, but ample supplies of Mormon crickets would remain in rangeland away from the protected areas. Persons using rangelands for recreation might encounter Mormon cricket outbreaks in areas away from the protected areas.

### Artificial surfaces

The probability of damage to artificial surfaces by the treatments under this alternative is negligible. Damage to artificial surfaces by Mormon crickets might occur in areas away from protected areas.

## **B. Other Environmental Considerations**

### 1. Cumulative Impacts

Cumulative impact, as defined in the CEQ NEPA implementing regulations (40 CFR § 1508.7), is the impact on the environment which results from the incremental impact of the action when added to the past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Some exposures, especially to workers, may occur over several days to several months. In addition, and in extremely rare situations, some program activities may be repeated more than once during a year. Such exposures are referred to as cumulative exposures.

Depending on the specific exposure scenario and the nature of the available data, the consequences of cumulative exposures are assessed in a variety of ways in the 2002 EIS.

Some individuals may be exposed to more than one treatment type, either in their job as applicators or because they frequent areas where different types of treatment are applied. Such exposures are considered connected actions, that is, one or more actions that an individual may take that could affect the individual's risk to the insecticides used to suppress Mormon crickets. In addition, all individuals are exposed to a multitude of chemicals and biological organisms every day in foods, medicines, household products, and other environmental chemicals.

Mosquito abatement programs might apply pesticides in or near areas under consideration for Mormon cricket suppression programs. If they did, apply insecticides over rangeland, there would be no need for Mormon cricket suppression treatments because the insecticides used for mosquitoes would exert control on the Mormon crickets. If mosquito abatement treatments were applied to water within or near areas under consideration for Mormon cricket suppression programs, there would be no

cumulative effect with because the Mormon cricket program would not apply insecticides to water.

Federal land managers may utilize various herbicides to control weeds within the proposed suppression area. APHIS would consult with land managers to determine if herbicides or insecticides have been utilized within the past year on any proposed spray block within the proposed suppression area. APHIS would not apply any insecticide in a manner that conflicts with EPA requirements regarding multiple treatments. APHIS would not apply insecticide to an area known to have been treated within one year with a pesticide known to have cumulative or synergistic effects with carbaryl.

## 2. Synergistic effects

The only studies of chemical interactions with carbaryl indicate that toxicity of organophosphates combined with carbaryl is additive not synergistic (2002 EIS p B-13)

## 3. Inert ingredients and metabolites

Although the formulations of carbaryl in some previous spray programs had oil-based carriers (i.e., Sevin 4-oil), current programs have converted to water-based carriers (i.e., SEVIN XLR PLUS). Some information about inert ingredients in these formulations is available. One inert ingredient is propylene glycol or propanediol (antifreeze agent). It degrades readily to carbon dioxide and water in soil and water environments after applications, so actual exposures from the Mormon cricket suppression program would only be acute. The low exposures to humans would not expect to have human health effects except to those few individuals experiencing allergic contact dermatitis. Because APHIS would use bait rather than spray formulations, there should be no contact with the skin of any humans except program personnel. Propylene glycol is practically nontoxic to fish and daphnia. Concentrations of propylene glycol from program application rates would not be anticipated to result in adverse effects to wildlife.

Carbaryl 5% bait is formulated by different manufacturers with a number of different substrates for the bait. Substrates include whole rolled wheat, wheat bran, and grape and apple pumice. For use in Idaho, APHIS normally prefers the formulation based on grape and apple pumice.

N-amyl acetate or "banana oil" may be used as a flavor additive in carbaryl bait. N-amyl acetate readily volatilizes to the atmosphere. Biodegradation occurs readily in soil, but there is moderate potential for bioconcentration in aquatic organisms. Although this compound is an irritant of skin, eyes, and mucus membranes, the low potential exposures from program applications of carbaryl bait are not expected to result in any adverse effects to humans. Although it may bioconcentrate in aquatic organisms, the toxicity to those species is low relative to the active ingredient (carbaryl) in the formulation.

The major hydrolytic metabolites of carbaryl are glucuronides and sulfates. Most metabolites such as naphthol are considerably less toxic than carbaryl. There has been

some concern expressed about the reaction of carbaryl with nitrite under certain circumstances. This may result in the formation of N-nitrosocarbaryl which has been shown to be mutagenic and carcinogenic in laboratory tests. See 2002 EIS pp B12-B13 for details and references.

4. Executive Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Although specific data are not available, observations indicate that Hispanics and Asians are the minority groups which would be most impacted by the suppression programs because of their involvement in agricultural production systems.

No Action Alternative may cause Hispanic and Asian farm workers to be exposed to additional insecticides applied to cropland. No Action Alternative may increase costs of operation for Asian and Hispanic farm operators. The other Alternatives would have no disproportionate impact on minority or low income populations.

Differential human health effects of Carbaryl on individuals with poor nutritional status are analyzed in the 2002 EIS pg B-25.

5. Executive Order No. 13045, Protection of Children from Environmental Health Risks and Safety Risks

The human health risk assessment for the 2002 EIS analyzed the effects of exposure of children to carbaryl and other insecticides (pp B24-B25). Based on review of the insecticides and their use in the grasshopper/Mormon cricket program, the risk assessment concluded that the likelihood of children being exposed to insecticides is very slight and that no disproportionate adverse effects to children are anticipated over the negligible effects to the general population. Treatments are primarily conducted on open rangelands where children would not be expected to be present. No urban areas or schools would be subject to treatment under the proposed action.

Potential for impacts of pesticides on children would be minimized by the implementation of the treatment guidelines, standard operational procedures and added measures included in III.D.7.

6. Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds

In accordance with various environmental statutes, APHIS routinely conducts programs in a manner that minimizes impact to the environment, including any impact to migratory birds. In January 2001, President Clinton signed Executive Order 13186 to ensure that all government programs protect migratory birds to the extent practicable. To further its purposes, this Executive Order requires each agency with a potential to impact migratory birds to enter into an MOU with FWS. In compliance with the Executive Order, APHIS is currently working with FWS to develop such an MOU.

## 7. Endangered Species Act

Policies and procedures for protecting endangered and threatened species of wildlife and plants were established by the Endangered Species Act (ESA) of 1973, as amended (16 United States Code (U.S.C.) 1531 *et seq.*). The ESA is designed to ensure the protection of endangered and threatened species and the habitats upon which they depend for survival. Regulations implementing the provisions of the ESA have been issued. In accordance with section 7 of the ESA, consultation is to be conducted for any action authorized, funded, or carried out by a Federal agency that may affect listed endangered or threatened species or their habitats. APHIS includes proposed species in their consultations. Consultations are conducted with Fish and Wildlife Service (FWS) for terrestrial species and most aquatic species and with the NOAA Fisheries for marine and anadromous species.

The most recent national biological opinion on the Mormon cricket program was issued by FWS July 21, 1995. In following years, no national biological assessment was prepared since control programs were not anticipated in most states due to lack of funding. A national biological assessment for the Rangeland Mormon cricket and Mormon Cricket Suppression Program is currently under way, but the process for its completion and consideration by FWS will not be concluded in time for the 2004 season. In order to comply with the Section 7 requirements, APHIS conducts ongoing informal consultations with FWS, locally. The 1995 biological opinion and 1998 biological assessment will be used as a basis for these local consultations and are incorporated into this EA by reference. Of the insecticides proposed for use in earlier assessments, only carbaryl bait has been retained for potential use under this EA. For this EA, APHIS conducted informal consultation with FWS, Snake River Basin Office and arrived at determinations of protective measures which were needed in addition to those derived from earlier Biological Opinions. In 2003 APHIS conferred with NOAA Fisheries Boise Idaho office and determined that consultation was not required if the proposed suppression area excluded watersheds of the Salmon river and the Snake River below Brownlee Dam.

### Listed Endangered or Threatened Species

The proposed project area may contain suitable habitat for Federally listed Threatened, Endangered or Candidate species. Protection measures and findings of no jeopardy or no effect without buffers or other measures previously approved by FWS are referenced by the date of the biological opinion (FWS XX/XX/XX). Measures developed by APHIS and FWS during 2003 consultation are referenced (FWS 2003).

#### Bald Eagle, *Haliaeetus leucocephalus*

The bald eagle is listed as a threatened species in all contiguous 48 States. Bald eagle habitat in South Central and Southeast Idaho is located along the South Fork, the Henry's Fork and the main Snake River downstream to the western border of the project area at King Hill Creek. The South Fork, Henry's Fork and main Snake River is considered year long habitat with the majority of the eagles present during the winter months. There are active bald eagle nests on all of the forks of the Snake River. Some immature birds have

been seen at American Falls Reservoir during early spring nest occupancy survey flights. The remainder of the main Snake, Boise, Weiser, Bruneau, and Payette River areas only contain bald eagles during the winter period. The only other nest location is in Southwestern Idaho on the Carbarton stretch of the Payette River.

APHIS would maintain 1-mile radius treatment-free zone around active aeries found on rivers and lakes with no flyovers of this area by contract pilots. (From FWS 06/01/87)

*Bull Trout, Salvelinus confluentus*

Bull trout have been listed as threatened under the ESA. Within the area in Idaho included in the proposal, bull trout are distributed throughout the Payette, Weiser, and Boise River systems. Bull trout naturally exhibit a patchy distribution, and will not likely occupy all areas of these basins at once. Proposed bull trout critical habitat is also distributed throughout these basins, and includes some habitat that is not currently known to be occupied. A very general description of bull trout distribution would include the North, Middle and South Fork Payette Rivers; Squaw Creek; the Weiser River Watershed; the Main Boise and South Fork Boise River including Anderson Ranch, Arrowrock and Lucky Peak Reservoirs.

In all areas occupied by bull trout or proposed as critical habitat for bull trout, APHIS would utilize a 500 foot buffer for carbaryl bait. If there are treatment needs within the buffer area, APHIS would consult with FWS on a case-by-case basis to examine alternatives. (FWS 2003)

Banbury Springs Limpet (*Ianx*), *Lanx* sp.; Bliss Rapids Snail, *Taylorconcha serpenticola*; Utah Valvata Snail, *Valvata utahensis*; Idaho Springsnail, *Fontelicella idahoensis*; and Snake River Physa Snail, *Physa natricina*

These five listed mollusks either occupy aquatic habitat found in select springs or they occur on substrate in the main stem of the Snake River.

The Banbury Springs limpet is known to occur at three sites in the Thousand Springs area near Hagerman, Idaho. It has only been found on cobble or boulder substrates in cool, clear, well-oxygenated water. All known populations have occurred in swift currents.

The Bliss Rapids snail has primarily been found on cobble-boulder substrate in flowing reaches of the main stem Snake River and alcove springs. River populations have been found in spring-influenced habitat or near the edge of rapids. Most populations occur in the Hagerman Reach, the tailwaters of Bliss and Lower Salmon Falls dams, large alcove springs, and springs on the Fort Hall Indian Reservation upstream of American Falls Reservoir.

The Utah valvata snail occurs in deep pools with a mud or sand substrate adjacent to rapids or in large perennial spring complexes. This snail has been found in a few springs and main stem Snake River sites in the Hagerman Valley, below American Falls downstream to Burley, Idaho and in the Lake Walcott and Minidoka Dam area.

The Idaho springsnail and the Snake River Physa snail are both main stem Snake River species which occur along stretches of the Snake River near the proposed treatment area.

In areas along the Snake River between C.J. Strike Reservoir and American Falls Reservoir, APHIS would utilize 500 foot buffer for all carbaryl bait. If there are treatment needs within the buffer area, APHIS would consult with FWS on a case-by-case basis to examine alternatives. (FWS 2003)

Gray Wolf, *Canis lupus*

The gray wolf has been determined to be an endangered species. Since the translocation of wolves from Canada, the population in Idaho south of Interstate Highway 90 is considered "experimental, non-essential" under Section 10(j) of the Endangered Species Act. Wolves range along the continental divide and into the Island Park area around Yellowstone National Park (YNP). Sightings of gray wolves have been made in diverse parts of the proposed suppression area.

High impact is unlikely as a result of proposed pesticides at proposed rates of application. (FWS 06/01/87)

Canada Lynx, *Lynx canadensis*

On March 24, 2000, the U. S. Fish and Wildlife Service listed the Canada lynx as a Threatened species under the ESA of 1973, as amended. This took effect on April 24, 2000. The proposed treatment areas may contain habitat conditions suitable for Canada lynx foraging, movement and dispersal activities. In Idaho, lynx are thought to primarily occur in the higher elevation, cold forest habitats which support spruce, subalpine fir, whitebark pine and lodgepole pine. Shrub/steppe habitats which occur adjacent to, or are intermixed with, cold forest habitats in Idaho are thought to be used to a limited extent by lynx for foraging and dispersal activities.

APHIS would not treat forested areas or rangelands that are not adjacent to crops but are surrounded by forest and are above 5000 feet in elevation in Idaho. (FWS2003)

Northern Idaho Ground Squirrel, *Spermophilus brunneus brunneus*

The northern Idaho ground squirrel is smaller than most ground squirrels at about 8-9" long. Reddish-brown spots dot its coat, and the squirrel has a short, narrow tail, tan feet and ears, and a grey-brown throat. This rare squirrel needs large quantities of grass seed, stems and other green leafy vegetation to store body energy for its eight-month hibernation from August through March. Adult males (2 years old) emerge from their burrows first in early spring, usually March or early April, followed by the females and then their young.

In 1985, scientists estimated that over 5,000 ground squirrels inhabited west-central Idaho. The animals occurred in open meadows and shrub/grasslands among coniferous forests of older Ponderosa pines and Douglas fir.

The northern Idaho ground squirrel's population has been greatly reduced, and today it is

found within 20 square miles of public and private lands near Council, Idaho. At high risk of extinction, this animal has suffered a 92% decline in population from 1985 to 1999. Fewer than 500 northern Idaho ground squirrels are estimated to be living at present.

The major threat to the northern Idaho ground squirrel is habitat loss due to conifer invasion and fire suppression. Other potential threats include agricultural land conversion, urban development, recreational activities, and naturally occurring events such as severe droughts lasting longer than three years.

### Formerly Proposed Species

#### Slickspot Peppergrass, *Lepidium papilliferum*

Slickspot peppergrass was included on the federal proposed list in 2002 but the proposal was withdrawn in January 2004. This annual or biennial forb occurs in sagebrush-steppe habitats in southwest Idaho, where it typically grows on micro sites known as slick spots. It is presently known from approximately 45 to 60 sites in Idaho. Many of these sites are adjacent to agricultural lands that have previously been sprayed, especially in the Kuna area.

Robertson (2002) suggested that halictid bees, chrysomelid beetles, dermestid beetles, gelechiid moths and, perhaps, bombyliid flies are capable of pollinating *L. papilliferum*. Robertson and Klemash (2003) reported that 25 insect families from five orders visited flowers, and that seed set is reduced when insects are excluded from flowers. Robertson (2003a) suggested that the apparent reliance of slickspot peppergrass on insect-mediated pollination has significant consequences for the long term viability of the species because of the isolated occurrences of populations. Gravity, wind, and water are all believed to play at least some role in seed dispersal. It is possible that ants do as well, since slickspots are occasionally associated with anthills. Robertson (2003b) reported herbivory by insects on *L. papilliferum* and suggested it might have an effect on survival and fruit production. He also determined that halictid bees are one of the main pollinators of *L. papilliferum*. He also found that sphecids and vespids wasps and tachinid and bombyliid flies can be efficient pollinators.

Mormon crickets feed on *Lepidium* species (Pfadt 1994) and could eliminate plants and seeds.

APHIS would abide by provisions of the Candidate Conservation Agreement for Slickspot Peppergrass recently developed by several cooperators in Idaho.

### Candidate Species

#### Columbia Spotted Frog, *Rana luteiventris*

The spotted frog is olive green to brown in color, with irregular black spots. They may have white, yellow, or salmon coloration on the underside of the belly and legs. Tadpoles are black when small, changing to a dark then light brown as they increase in size.

Spotted frogs are about one inch in body length at metamorphosis, can attain a length of four inches as adults, and can live more than ten years. They begin reproducing in their second or third year. Softball-sized egg masses are deposited in shallow, calm water in March and April, depending on weather and climate. Tadpoles hatch two to three weeks later, eventually moving from breeding sites to any connected wet areas and feeding on algae, plant material and detritus. Tadpoles transform into small juvenile frogs between late July and November, at which time they forage on tiny insects before seeking shelter for winter hibernation.

Spotted frogs live in spring seeps, meadows, marshes, ponds and streams, usually where there is abundant vegetation. They often migrate along riparian corridors between habitats used for spring breeding, summer foraging, and winter hibernation. Depending on climate and habitat conditions, spotted frogs may begin seeking overwinter sites as early as September. Springs, cutbanks, and willow roots provide quality habitat for hibernacula that are well-oxygenated and stable in temperature.

Prior to 1997, the Columbia spotted frog and the Oregon spotted frog were lumped into one species, *Rana pretiosa*. Additional genetic information indicated that they are two separate species. Columbia spotted frogs have been further divided into four populations, including the Great Basin population. The Great Basin population is found in Eastern Oregon, Southwestern Idaho, and Nevada. In Idaho, it occurs in the mid-elevations of the Owyhee uplands and in Southern Twin Falls County.

Threats to the Great Basin population of Columbia spotted frogs include grazing, spring development, road and trail construction, water diversion, fire in riparian corridors, pesticides, disease, and the introduction of non-native fish. Increasing habitat fragmentation due to activities that reduce riparian connectivity makes local populations vulnerable to extirpation.

APHIS would utilize buffers around all water bodies to provide protection for this candidate species. (FWS 2003)

Southern Idaho Ground Squirrel, *Spermophilus brunneus endemicus*

The Southern Idaho ground squirrel is about 8-9" long, with a short, narrow tail, tan feet and ears, and a grey-brown throat. This small-eared mammal differs from a similar subspecies the Northern Idaho ground squirrel in pelage coloration. The southern have a noticeably paler coat than the northern, which is attributed to the lower-elevation, sagebrush/grassland habitat in which it lives. The granitic sands and clays of the Weiser River Basin are thought to influence the Southern Idaho ground squirrel's lighter coloration, while the deeper reddish-colored northern are found in higher-elevation areas with shallow reddish soils of basaltic origin. Research suggests that the squirrels prefer areas with a high percentage of native cover such as big sagebrush, bitterbrush and a variety of native forbs and grasses; however, some nonnative features may enhance their survival such as alfalfa fields, haystacks or fence lines.

These squirrels spend much of their time underground. Adults emerge from seasonal hibernation in late January or early February, depending on elevation and habitat conditions. As with other ground squirrels in the Northwest, the adults have a short active season above ground of 4 to 5 months. During this time, the animals feed on large quantities of grass seed, stems and green leafy vegetation which are required for storage of fat to survive long months of hibernation. When squirrels emerge from their burrows, they begin breeding; young are born about three weeks later and emerge from the nest burrow in about 50 days. The ground squirrels cease their above ground activity by late June or early July to return to their burrows for hibernation.

During the past 30 years, a dramatic population decline of Southern Idaho ground squirrels has occurred. Surveys indicate a precipitous decline in squirrel populations since the mid-1980s. In 1985, one study estimated the population at around 40,000. A 1999 survey of 145 of the 180 known historical population sites indicated that only 53 sites (37 percent) were still occupied. Furthermore, 52 of the 53 sites had what biologists characterized as "remarkable low levels of activity". The Southern Idaho ground squirrel occurs within an 810-square mile area (Gem, Payette and Washington counties).

Threats to Southern Idaho ground squirrels include exotic grasses and weeds, habitat fragmentation, direct killing from shooting, trapping or poisoning, predation, competition with Columbian ground squirrels (*Spermophilus columbianus*), and inadequacy of existing regulatory mechanisms to protect the species or its habitat. Most of these threats occur throughout the range of the species.

APHIS would consult with FWS to address site-specific concerns. (FWS 2003)

#### Yellow-billed cuckoo, *Coccyzus americanus*

The yellow-billed cuckoo is a secretive, robin-sized songbird that lives in the Western United States in willow and cottonwood forests along rivers and streams. The birds are generally absent from heavily forested areas and large urban areas. Yellow-billed cuckoos primarily eat large insects such as caterpillars and cicadas, as well as an occasional small frog or lizard. Cuckoos usually lay two or three eggs, and the young develop very rapidly. On average, it takes 17 days from egg-laying to fledging of young. Yellow-billed cuckoos breed from southern Canada south to the Greater Antilles and Mexico. While the yellow-billed cuckoo is common east of the Continental Divide, biologists estimate that more than 90 percent of the bird's riparian habitat in the West has been lost or degraded as a result of conversion to agriculture, dams and riverflow management, bank protection, overgrazing, pesticide use, and competition from exotic plants such as tamarisk.

Populations have declined rapidly throughout the western U.S. in the twentieth century, and are extirpated from British Columbia, Washington, and possibly Nevada. In Idaho, the species is considered a rare visitor and breeder in the Snake River Valley, occurring in ten of the counties within the proposed suppression area.

Because the birds are primarily found in riparian areas, potential threats include conversion of this habitat to agriculture, dams and riverflow management, bank protection, livestock overgrazing, agricultural water use, pesticide use, and competition from exotic plants.

APHIS would utilize buffers around all water bodies to provide protection for this candidate species. (FWS 2003)

Species under Review by U.S. Fish and Wildlife Service or Petitioned For Listing as T&E

Columbian Sharp-tailed Grouse and Sage Grouse

Both of these grouse species are BLM listed sensitive species. The Columbian sharp-tailed grouse has been petitioned for listing under the ESA. On February 7, 2003, FWS found that the Western subspecies of sage grouse is not eligible for federal protection under ESA. Young grouse hatch in the spring at about the same time as Mormon cricket populations begin to mature. Insects are a critical source of protein for the young birds. Large Mormon cricket populations may be common in the critical habitat of both species.

Bonneville Cutthroat Trout and Yellowstone Cutthroat Trout

Both the Bonneville cutthroat trout and Yellowstone cutthroat trout are currently petitioned for listing as threatened under the ESA. The Bonneville cutthroat trout is limited to the Bear River watershed. The Yellowstone cutthroat trout is believed to occupy a number of streams scattered across Eastern Idaho. Their current distribution is under investigation.

Mulford's Milkvetch, Woven-Spore Lichen, and Malheur Prince's-plume

These plants are currently under review by the FWS for listing as federal candidate species.

Mulford's milkvetch is endemic to Southwest Idaho and extreme Southeast Oregon, where it grows in deep sandy soils. It is typically associated with bitterbrush, needle-and-thread grass, and Indian ricegrass. In Idaho, Mulford's milkvetch is known from Ada, Owyhee, Payette, and Washington counties. While no information is available regarding its pollination biology, Mulford's milkvetch is believed to be insect pollinated. Seed dispersal is most likely by gravity and wind.

Woven-spore lichen grows on humus in sagebrush-steppe habitats in Southwest Idaho, Central Oregon, and Southern Washington. Several localities are also known from Southern California. Woven-spore lichen has been found at 14 localities in Idaho, all within Ada and Elmore counties. Most of the sites are adjacent to or are surrounded by private land. Nothing is known of its reproductive or dispersal mechanisms.

The FWS initiated a status review for Malheur prince's-plume in 2000. This showy, three foot tall biennial plant species is known from six widely scattered localities in Gooding, Owyhee and Washington counties in southwest Idaho. It grows only on sparsely vegetated clay soils. Approximately 15 populations of Malheur prince's-plume

are known from southeast Oregon in Harney and Malheur county. A variety of bees and beetles have been observed visiting the flowers, but no pollination studies have been conducted.

**Table 1. Protection Measures and Determinations for Special Status Species**

Bald Eagle (T)  Not likely to adversely affect (NLAA)	1-mile radius treatment-free zone around active aeries found on rivers and lakes with no flyovers of this area by contract pilots. Maintain a 2.5 mile no aerial treatment zone upstream and downstream from the nest site with a 0.25 mile buffer along each side of the river. Lakes considered foraging areas would have 0.25 mile no-aerial treatment buffer. (From FWS 06/01/87)
Bull Trout (T)  NLAA	In all areas proposed as critical habitat for bull trout, APHIS would utilize a 500 foot buffer for carbaryl bait. If there are treatment needs within the buffer area, APHIS would consult with FWS on a case-by-case basis to examine alternatives. (FWS 2003)
Banbury Springs Limpet (lanx) (E), Bliss Rapids Snail (T), Utah Valvata Snail (E), Idaho Springsnail (E), Snake River Physa Snail (E) NLAA	In areas along the Snake River between C.J. Strike Reservoir and American Falls Reservoir APHIS would utilize a 500 foot buffer for carbaryl bait. If there are treatment needs within the buffer area, APHIS would consult with FWS on a case-by-case basis to examine alternatives. (From FWS 2003)
Gray Wolf (E) (experimental)  NLAA	High impact unlikely as a result of proposed pesticides at proposed rates of application. (FWS 06/01/87)
Canada Lynx (T)  NE	APHIS would not treat forested areas or rangelands that are not adjacent to crops but are surrounded by forest and are above 5000 feet in elevation in Idaho. (FWS 2003)
Northern Idaho Ground Squirrel (T) NE	APHIS would exclude from the proposed suppression area the land described by FWS as North Idaho Ground Squirrel recovery area.

**Table 1.1 Protective Measures for Candidate Species**

Columbia Spotted Frog (C)	Insecticide application rates would be reduced below EPA maximum allowable rates. Percentage of EPA maximum allowable rates which would be applied: carbaryl bait 25%
Southern Idaho Ground Squirrel (C)	
Yellow-billed cuckoo (C)	<p>Additionally, treatment blocks would not receive full area coverage. 25% to 99% of treatment block would not receive direct application.</p> <p>Aerial applications of carbaryl bait would not be made within 500 feet of water.</p> <p>Ground applications of carbaryl bait would not be made within 50 feet of water.</p> <p>APHIS would consult with USFWS before treating occupied Southern Idaho Ground Squirrel habitat.</p>

**Table 1.2 Protective Measures for Species Under Review (Sensitive Species)**

<p>Bonneville Cutthroat Trout Yellowstone Cutthroat Trout and Redband Trout (S)</p> <p>Mulford's Milkvetch, Woven-Spore Lichen, Malheur Princesplume, Mourning Milkvetch, Picabo Milkvetch, Snake River Milkvetch, Janish's Penstemon, Matted Cowpie Buckwheat, and St. Anthony Evening Primrose (S)</p> <p>Western Burrowing Owl, Northern Harrier, Upland Game Birds and the Swainson's Hawk (S)</p> <p>Western Toad, Woodhouse's Toad, and Northern Leopard Frog (S)</p> <p>Western Ground Snake, Longnose Snake and Common Garter Snake (S)</p> <p>Townsend's Big Eared Bat, Spotted Bat, Western Small-footed Myotis, Long Eared Myotis, Fringed Myotis, Long-legged Myotis, Western Pipistrelle, and Yuma Myotis (S)</p> <p>Kit Fox (S)</p>	<p>Insecticide application rates would be reduced below EPA maximum allowable rates. Percentage of EPA maximum allowable rates which would be applied: carbaryl bait 25%</p> <p>Additionally, treatment blocks would not receive full area coverage. 25% to 99 of treatment block would not receive direct application.</p> <p>Aerial applications of carbaryl bait would not be made within 500 feet of water.</p> <p>Ground applications of carbaryl bait would not be made within 50 feet of water.</p>
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## 8. Environmental Monitoring

Monitoring involves the evaluation of various aspects of the Mormon cricket suppression programs. There are three aspects of the programs that may be monitored. The first is the efficacy of the treatment. APHIS would determine how effectively the application of an insecticide has suppressed the Mormon cricket population within a treatment area and would report the results to the APHIS Western Region and to the land manager.

The second area included in monitoring is safety. This includes ensuring the safety of the program personnel through medical monitoring conducted specifically to identify sensitive or overexposed individuals. (See APHIS Safety and Health Manual (USDA, APHIS, 1998) available online at: [www.aphis.usda.gov/mb/aseu/shes/shes-manual.html](http://www.aphis.usda.gov/mb/aseu/shes/shes-manual.html) ).

The third area of monitoring is environmental monitoring. APHIS Directive 5640.1 commits APHIS to a policy of monitoring the effects of Federal programs on the environment. Environmental monitoring includes such activities as checking to make sure the insecticides are applied in accordance with the labels, and that sensitive sites and organisms are protected. The environmental monitoring recommended for Mormon cricket suppression programs involves monitoring sensitive sites such as bodies of water used for human consumption or recreation or which have wildlife value, habitats of endangered and threatened species, habitats of other sensitive wildlife species, edible crops, and any sites for which the public has expressed concern or where humans might congregate (e.g., schools, parks, hospitals).

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## **VII. Listing of Agencies and Persons Consulted**

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## **Appendix 1: FY-2004 Guidelines for Treatment of Rangeland for the Suppression of Grasshoppers and Mormon Crickets in the 17 Western States**

### Suppression Treatment on Federally Managed Rangeland

Subject to available funding, the United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine (USDA-APHIS-PPQ) may contribute to the control of grasshoppers and Mormon crickets on federal rangeland in three ways: (1) conduct field surveys, (2) provide technical assistance to land managers, and (3) participate in suppression treatments when requested and necessary. In situations when traditional practices of land managers fail to maintain grasshopper and Mormon cricket populations below outbreak levels, USDA-APHIS-PPQ at the request of the Federal land management agency or Tribal authority, when appropriate, and subject to available funding may conduct suppression treatments on federally managed rangeland or rangeland held in Trust by the federal government.

Rangeland eligible for cooperative suppression treatments for grasshoppers include: (1) large rangeland blocks (i.e.,  $\geq 10,000$  acres) that if treated would protect forage as well as prevent re-infestation from immigrant grasshoppers; (2) incipient populations (“hot spots”) of grasshoppers that if treated would prevent a wider spread of outbreaks; and (3) Federal or Trust land borders that if treated would prevent the movement of damaging populations of grasshoppers to adjacent private agricultural land. Rangeland cooperative suppression treatments for Mormon crickets may be conducted on a small or large scale. The final determination of whether a cooperative suppression treatment on federal rangeland is warranted will be made by USDA-APHIS-PPQ, upon receipt of the land manager’s written request and based on the best available information.

### Suppression Treatments on State and Private Rangeland

Subject to available funding, the USDA-APHIS-PPQ may contribute to the suppression of grasshoppers and Mormon crickets on State and private rangeland in three ways: (1) conduct field surveys, (2) provide technical assistance to landowners, and (3) participate in suppression treatments when requested and necessary. In situations when traditional practices of land managers fail to maintain grasshopper and Mormon cricket populations below outbreak levels, USDA-APHIS-PPQ at the request of the State Department of Agriculture and subject to available funding may conduct suppression programs on State and private rangeland.

State and private rangeland eligible for cooperative suppression treatments for grasshoppers include: (1) large rangeland blocks (i.e.,  $\geq 10,000$  acres) that if treated would protect forage as well as prevent re-infestation from immigrant grasshoppers; and (2) incipient populations (“hot spots”) of grasshoppers that if treated would prevent a wider spread of outbreaks. State and private rangeland cooperative suppression treatments for Mormon crickets may be conducted on a small or large scale. However, USDA-APHIS-PPQ will not participate in cooperative suppression programs for grasshoppers and Mormon crickets on private cropland, except when deemed necessary to maintain the

integrity of a large spray block. The final determination of whether a cooperative suppression treatment on State and private rangeland is warranted will be made by USDA-APHIS-PPQ, upon receipt of the State's written request and based on the best available information.

#### General Guidelines for Suppression Programs on Rangeland

1. Cooperative suppression treatments will be completed in accordance with the Plant Protection Act (PPA) of 2000 and Agency policy. Suppression treatments will follow guidelines within the Environmental Impact Statement (EIS), Site-Specific Environmental Assessment (EA), Section 7 Consultation of the Endangered Species Act, 2004 Environmental Monitoring Plan, pesticide label, and the 2004 Guidelines stated herein.
2. The Grasshopper Program will follow all requirements of the National Environmental Protection Act (NEPA). Environmental Assessments (EAs) for suppression treatments on rangeland will be completed in accordance with National and/or local Memoranda of Understanding (MOUs) between USDA-APHIS-PPQ and the Federal land management agencies and/or Tribes. Prior to treatments and per Section 7 Consultation, USDA-APHIS-PPQ and/or the Federal land manager and/or Tribe will consult locally with U.S. Fish & Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration (NOAA) Fisheries in situations where: (1) threatened or endangered species occur in the area, or (2) pesticides or application procedures utilized have not been addressed in the Programmatic Biological Opinion of 1995 or in other Opinions. Upon completion of the EA, the State Plant Health Director of USDA-APHIS-PPQ or his/her designee will, if appropriate, sign a Finding of No Significant Impact (FONSI), after which suppression treatments may commence.
3. The Federal Government will bear 100% of the cost of treatment on federally managed or Trust land, up to 50% of the cost on State land, and up to 33% of costs on private land. The Federal Government's participation in the cost share is contingent on allocation and availability of funds. First, USDA-APHIS-PPQ will conduct or fund surveys from the congressional appropriation, then may conduct suppression treatments with any remaining funds, if requested. Additional sources of support for suppression treatments may include Contingency funds, Commodity Credit Corporation (CCC) funds, Land Management Agencies' funds, or other funding resources.
4. Land managers are responsible for the overall management of rangeland under their control to prevent or reduce the severity of grasshopper and Mormon cricket outbreaks. USDA-APHIS-PPQ and/or its designated cooperator may conduct suppression treatments on Federal/Tribal lands if requested in writing by the Federal land manager and/or Tribal authority for Trust lands.
5. USDA-APHIS-PPQ, when requested by the land manager, may conduct border treatments on Federal or Trust rangeland in situations when damaging populations of

grasshoppers and Mormon crickets threaten private agricultural land. Border treatments can only be justified when the potential for damage from grasshoppers and Mormon crickets migrating into private agricultural lands constitutes a legitimate and justifiable threat.

6. At the written request of the respective State Department of Agriculture, USDA-APHIS-PPQ and/or the designated cooperator may conduct cooperative suppression programs on State and/or private rangeland, as permitted by regulation and available funding.

7. In the absence of available USDA-APHIS-PPQ funding, the Federal land management agency, Tribal authority or other party may opt to reimburse USDA-APHIS-PPQ for suppression treatments. Interagency agreements or reimbursement agreements must be completed prior to the start of treatments.

8. For rangeland programs conducted by the Federal government, USDA-APHIS-PPQ and/or cooperating personnel (i.e., cooperative agreement) will provide overall direction and monitoring of aircraft calibration, pesticide inventory and application, and will maintain records of pesticides used and acres treated.

9. In some cases, rangeland treatments may be conducted by other Federal agencies (e.g., Forest Service, Bureau of Land Management, or Bureau of Indian Affairs) or by non-Federal entities (e.g., Grazing Association or County Pest District). USDA-APHIS-PPQ may choose to assist these groups in a variety of ways, such as: (1) loaning equipment; (2) providing materials and pesticides; and (3) contributing in-kind services such as surveys, determination of insect species and instars, and treatment monitoring. A cooperative agreement is needed when the assistance by USDA-APHIS-PPQ represents significant monetary value (e.g., providing pesticide or loaning equipment). Finally, the USDA-APHIS-PPQ State Plant Health Director is responsible for ensuring that any cooperative treatments on State or private rangeland adhere to the cost-share ratios in the PPA and National Environmental Protection Act (NEPA), as applicable.

10. Prior to initiating treatments funded by or through USDA-APHIS-PPQ, the State Plant Health Director's office will prepare a Detailed Work Plan and a Work Checklist (including a map), which then must be approved by the USDA-APHIS-PPQ Western Regional Office. In addition, the USDA-APHIS-PPQ State office will provide a weekly update to the Regional Office on acres treated and pesticides used. Upon completion of each grasshopper or Mormon cricket suppression program, the USDA-APHIS-PPQ State office will prepare a summary for the Federal land manager or Tribal authority and will submit a Work Achievement Report to the Western Regional Office.

13. Beekeepers should be notified in advance of proposed rangeland treatments so that they can move their bees before a suppression program begins. Observation aircraft may be used to check for bees in the proposed area. Registered bee locations must be documented on the treatment map. Non-treated buffer zones should be determined for

pollinators (e.g., alkali, leafcutter or honey bees) based on the EA and the pesticide labels [See 2004 Operational Procedures below].

12. In accordance with the EIS, the following pesticides may be used for rangeland treatments of grasshoppers and Mormon crickets: Sevin XLR Plus, carbaryl bait, Dimilin 2L, and malathion ULV. All pesticides must be used in accordance with the label, NEPA documents, Biological Opinion, local Section 7 Consultation, 2004 Operational Procedures, and any pertinent local decisions that are more restrictive.

13. Treatment contracts will adhere to the 2004 Prospectus.

## **2004 Operational Procedures**

### GENERAL PROCEDURES FOR ALL AERIAL AND GROUND APPLICATIONS

1. Follow all applicable Federal, State, Tribal and local environmental laws and regulations in conducting grasshopper and Mormon cricket suppression treatments.
2. Hold public meetings well in advance of proposed programs. Arrange for public notifications to encourage public input into the decision making process.
3. Notify Federal, State and Tribal land managers and private cooperators of grasshopper and Mormon cricket infestations on their lands. Describe estimated boundaries, severity of the infestation, and treatment options. This notification will request the land manager to advise USDA-APHIS-PPQ of any sensitive areas (e.g., parks, recreation areas, etc.) that may exist in the proposed treatment areas.
4. Obtain request, in writing, from land managers or landowners for suppression treatments to be undertaken on their land.
5. Notify residents within treatment areas, or their designated representatives, prior to proposed operations. Advise them of control method to be used, proposed method of application, and precautions to be taken. Follow label requirements pertaining to a restricted entry period.
6. Avoid residences and other premises whose occupants are opposed to their property being treated. In cases when State law requires treatment but landowners or occupants are opposed to the treatments, USDA-APHIS-PPQ will cooperate to the extent possible and as authorized by Federal and State laws.
7. Instruct program personnel in the use of equipment, materials and procedures; supervise to ensure procedures are followed properly.
8. USDA-APHIS-PPQ employees who plan, supervise, recommend or perform pesticide treatments must be certified under the USDA-APHIS-PPQ Pesticide Applicator Certification Plan. They are also required to fulfill any additional qualifications or pesticide use requirements of the State wherein they perform these duties.
9. Strictly follow all EPA and State approved label instructions for insecticides.
10. Do not apply insecticides directly to water bodies (defined herein as reservoirs, lakes, ponds, pools left by seasonal streams, springs, wetlands, and perennial streams and rivers). Furthermore, provide the following buffers for water bodies: 500-foot buffer with aerial liquid insecticides; 200-foot buffer with aerial bait; and 50-foot buffer with ground bait.

11. Require unprotected workers to stay out of treated areas, according to the label re-entry requirements or until the insecticide has dried, whichever period is longer.
12. Protective clothing and equipment will be worn and used by all pilots, loaders, and field personnel, as specified on the label.
13. All insecticide containers must be stored and disposed of properly according to the label. Rinse solution for drums may be used as diluent in preparing spray tank mixes, or it may be collected and stored for subsequent disposal in accordance with label instructions. Use one of the following disposal methods (in order of preference):
  - a. Use full service contracts and require the contractor to properly store and dispose of pesticide containers.
  - b. Require chemical companies, distributors, or suppliers to accept the triple-rinsed containers.
  - c. Crush and/or puncture the empty triple-rinsed containers, report on Form AD-112 to Property Services, Field Servicing Office, Minneapolis, MN, and dispose of as scrap metal.
  - d. Other suitable methods as approved locally in concurrence with Safety, Health and Environmental Security (SHES; Bill Benson, 301-734-5577).
14. Conduct mixing, loading, and unloading in an approved area where an accidental spill would not contaminate a water body. In the event of an accidental spill, follow the procedures set forth in PPQ Guidelines for Managing Pesticide Spills (USDA APHIS, *Treatment Manual*, 1996, pages 11.17-11.26) and the 1996 Aerial Application Manual (4.37-4.39).
15. It may be useful to notify local law enforcement agencies and fire officials of pesticide storage areas and treatment blocks.
16. All APHIS project personnel will have baseline cholinesterase tests before the first application of AChE inhibiting insecticides, such as organophosphates or carbamates (i.e., no testing required for dimilin usage), and on a routine basis as described in the *APHIS Safety and Health Manual*. It is recommended that contract, State, and private project personnel also participate in a cholinesterase monitoring program.
17. Endangered Species (also see operational procedures listed under each control method in the EIS).
  - a. Formal consultation will be accomplished with the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA) Fisheries at the national level or designated points of contact. The USFWS Portland Regional Office has been designated as the official contact for formal consultation. Communications at the local level with the USFWS or the

NOAA Fisheries will be conducted to address activities outside the National Biological Opinion.

b. State-listed endangered and threatened species, Federal candidate species, and other sensitive areas will be addressed in the site-specific EA.

18. For rangeland programs conducted by the Federal government, USDA-APHIS-PPQ will conduct efficacy monitoring. For blocks of 10,000 acres or less, 20 sites shall be established and grasshopper densities estimated before and after treatment (at present, visual kill checks can be done for Mormon crickets). For blocks over 10,000 acres, add one additional site for each 1,000 acres.

#### SPECIFIC PROCEDURES FOR AERIAL APPLICATIONS

1. Aircraft, dispersal equipment and pilots that do not meet all contract requirements of the 2004 Prospectus will not be allowed to operate on the Program.
2. Use Global Positioning System (GPS) coordinates or shape files if available, for pilot guidance on the parameters of the spray block. Ground flagging or markers should accompany GPS coordinates when necessary in delineating the project area and in omitting areas from treatment (e.g., boundaries and buffers for bodies of water, habitats of protected species, etc.).
3. Utilize two-way communication equipment for appropriate field personnel. Communication will be available for continuous contact between pilots and the COR.
4. Pre-spray reconnaissance flights or ground orientation trips may be conducted to ensure that pilots are familiar with program area boundaries, buffers, and areas that are not to be treated.
5. Make the following available to relevant personnel in advance of any treatment: stock safety kits, pesticide spill kits, thermometers, flagging material, wind gauges, spray-deposit samplers and daily aircraft records.
6. No treatments will occur over congested urban areas. Whenever possible, plan aerial ferrying and turnaround routes to avoid flights over congested areas, water bodies, and other sensitive areas that are not to be treated.
7. To minimize drift and volatilization, do not conduct aerial applications when any of the following conditions exist in the treatment area: wind velocity exceeds 10 miles per hour (unless lower wind speed required under State law); air turbulence could seriously affect the normal spray pattern; and temperature inversions could lead to off-site movement of spray. Also, suspend aerial applications when the following weather conditions occur and will seriously impede pesticide efficiency: rain (present or imminent), fog, or wet foliage.

8. Weather conditions at the treatment area will be monitored by trained personnel before and during application. Operations will be suspended at any time that weather conditions could jeopardize the safe and/or effective placement of the spray on target areas.

9. Weather plays an important role in aerial application. Winds may displace the pesticide within the target area. High temperatures combined with low humidity may cause fine sprays to evaporate and drift away without reaching the target. The best weather for spraying is usually from dawn through mid-morning. A simple indicator of time-to-quit is soil/air temperature difference. The soil temperature should be taken by placing the thermometer probe on an unshaded site while shading the thermometer for three minutes before reading. Air temperature should be taken five feet above the surface, in the open but with the thermometer shaded. When the soil temperature rises above the air temperature, the spray pattern normally starts breaking up at which time treatment operations should cease. Constant monitoring of the spray deposit pattern is the best method of determining the effects of weather factors.

10. Do not apply while school buses are operating in the treatment area. Do not apply within 500 feet of schools or recreational facilities.

11. Protection of Bees:

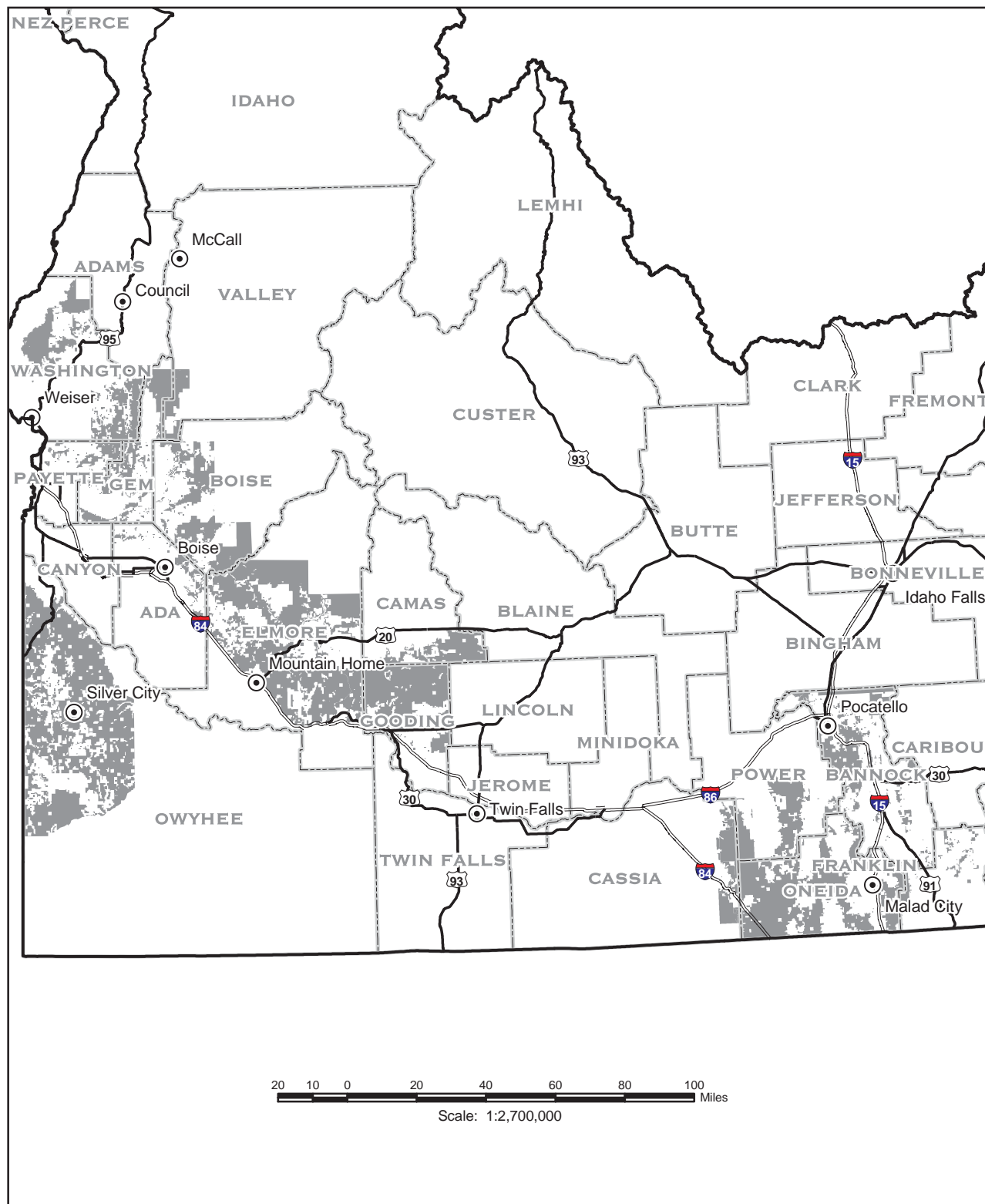
- a. When off-season or early-season planning indicates an area may require treatment, send early notification letters and maps of the proposed treatment areas to all registered apiarists in the State or near the area.
- b. Pre-spray reconnaissance flights may be conducted to ensure that honey bees and other bees used as commercial crop pollinators have been moved or protected. If bees remain, ensure that the beekeeper received notice of the impending treatment and that the program is conducted in accordance with State law.
- c. If a treatment is planned within four miles of areas where alkali or leaf cutter bees are being used for increasing the yield of alfalfa seed, monitor wind conditions and use dye cards as spray samplers to ensure that spray drift does not reach these areas.
- d. Do not apply dimilin, carbaryl or malathion to any blooming crops or allow it to drift onto blooming crops if commercial bees are visiting the area.

12. When using aerial bait, do not apply the bait directly to water bodies (defined as reservoirs, lakes, ponds, pools left by seasonal streams, springs, wetlands, and perennial streams and rivers), and provide a 200-foot buffer.

#### SPECIFIC PROCEDURES FOR GROUND APPLICATIONS (BAIT and LIQUIDS)

1. Do not apply ground bait directly to water bodies (defined as reservoirs, lakes, ponds, pools left by seasonal streams, springs, wetlands, and perennial streams and rivers). Furthermore, provide a 50-foot buffer.

## 2004 Potential Mormon Cricket Program Areas in Idaho



### Source of Data Layers

**Source of Data Layers**  
Mormon Cricket Program Areas: Clipped from Idaho BLM land status corporate dataset  
Roads: USGS 1:100,000 Digital Line Graph  
Cities: Idaho BLM 1:500,000 corporate dataset

Datum: North American Datum 1927  
Projection: UTM Zone 11  
Units: Meters


### Legend

2004 Potential Mormon Cricket Program Areas

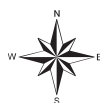
 County Boundaries

 Cities

## Highways

 Interstate  
 U.S.

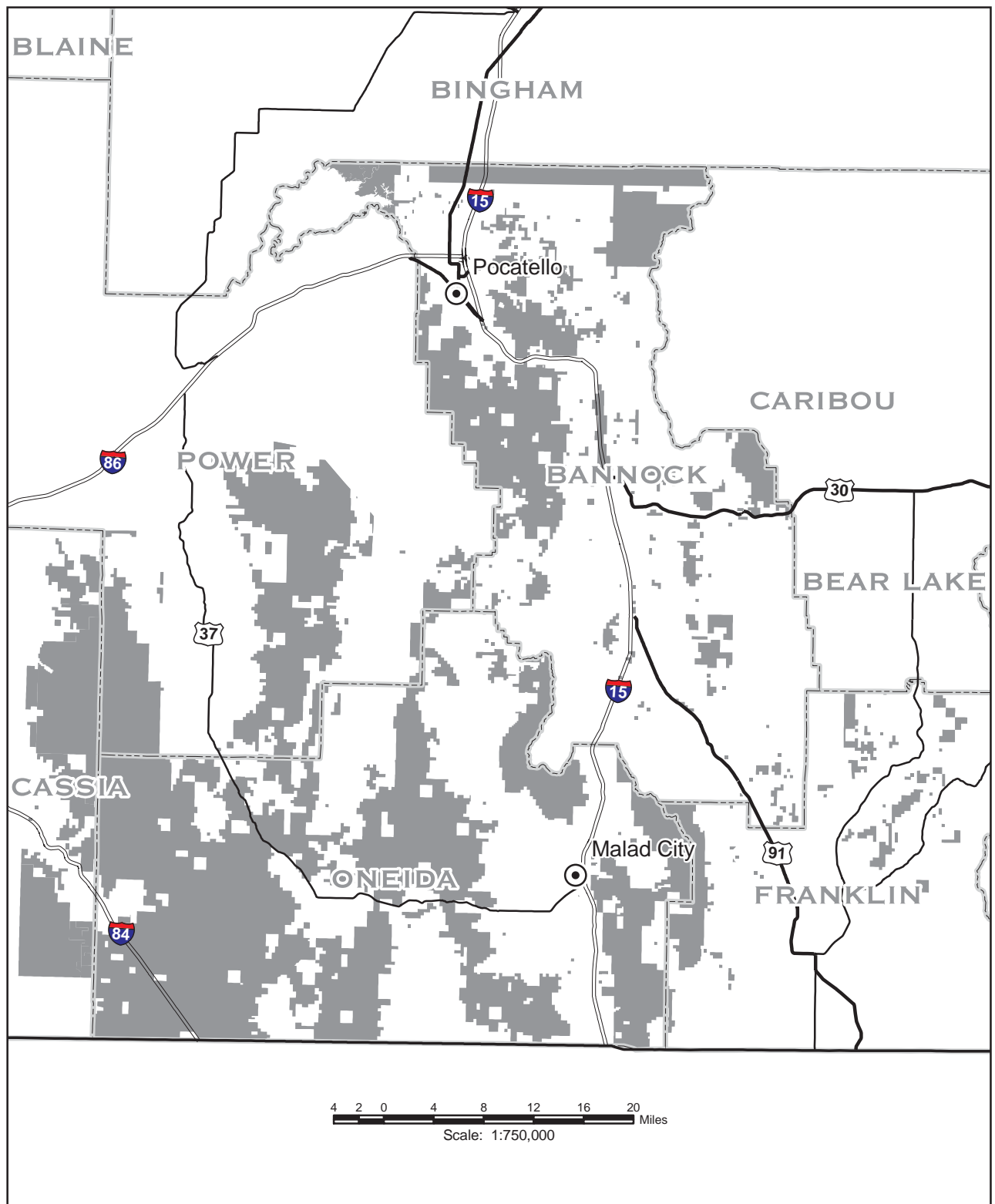
Printed by the Idaho State Office  
U.S. Department of the Interior  
Bureau of Land Management  
1387 S. Vinnell Way  
Boise, Idaho 83709  
February 2004



A-2-1

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

# 2004 Potential Mormon Cricket Program Areas in Southeast Idaho



**Source of Data Layers**  
 Mormon Cricket Program Areas: Clipped from Idaho BLM land status corporate dataset  
 Roads: USGS 1:100,000 Digital Line Graph  
 Cities: Idaho BLM 1:500,000 corporate dataset

Datum: North American Datum 1927  
 Projection: UTM Zone 12  
 Units: Meters



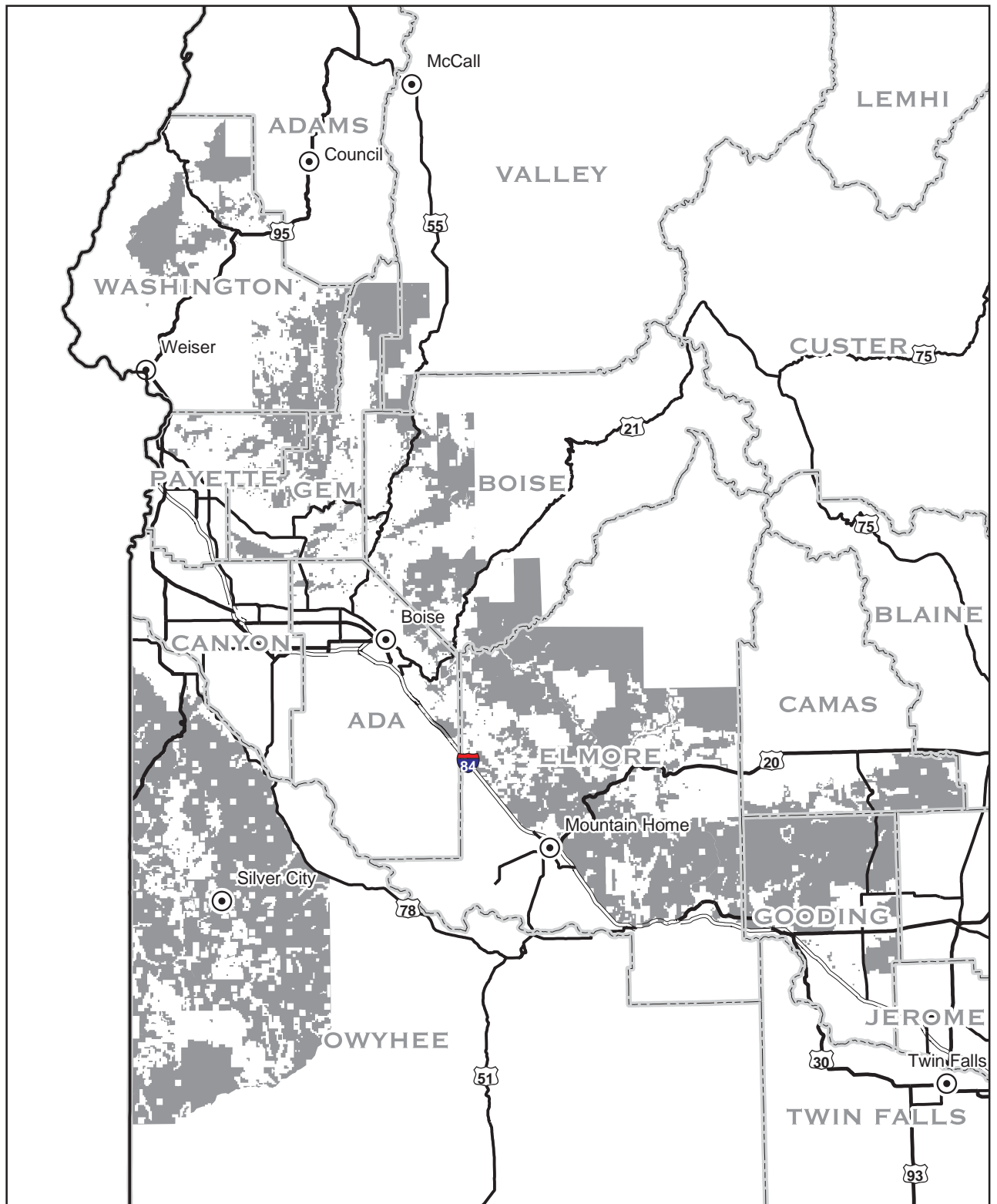
## Legend

- 2004 Potential Mormon Cricket Program Areas
- County Boundaries
- Cities
- Interstate
- U.S.
- State

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 U.S. Department of the Interior  
 Bureau of Land Management  
 1387 S. Vinnell Way  
 Boise, Idaho 83709  
 February 2004

# 2004 Potential Mormon Cricket Program Areas in Southwest Idaho



10 5 0 10 20 30 40 Miles  
Scale: 1:1,500,000

Printed by the Idaho State Office  
U.S. Department of the Interior  
Bureau of Land Management  
1387 S. Vinnell Way  
Boise, Idaho 83709  
February 2004

Datum: North American Datum 1927  
Projection: UTM Zone 11  
Units: Meters



## Legend

- |  |   |  |            |
|--|---|--|------------|
|  | 2004 Potential Mormon Cricket Program Areas |  | Highways   |
|  | County Boundaries                           |  | Interstate |
|  | Cities                                      |  | U.S.       |
|  |   |  | State      |

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

Source of Data Layers  
Mormon Cricket Program Areas: Clipped from Idaho BLM land status corporate dataset  
Roads: USGS 1:100,000 Digital Line Graph  
Cities: Idaho BLM 1:500,000 corporate dataset





**UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, WA 98115

February 23, 2004

David McNeal, Jr.  
State Plant Health Director  
Animal and Plant Health Inspection Service  
9134 West Blackeagle Drive  
Boise, Idaho 83709

RE: Idaho Rangeland Grasshopper and Mormon Cricket Suppression Program

Dear Mr. McNeal:

This responds to the February 18, 2004, letter requesting Endangered Species Act (ESA) consultation and Magnuson-Stevens Fishery Conservation and Management Act (MSA) consultation on the subject action. Animal and Plant Health Inspection Service (APHIS) has determined this project would have no effect on ESA listed Snake River salmon and steelhead, designated critical habitat, or Essential Fish Habitat (EFH) under the jurisdiction of NOAA's National Marine Fisheries Service (NOAA Fisheries), and consultation is not necessary. This determination is based on the information provided that the proposed suppression areas would not apply pesticides in watersheds that contain listed salmon and steelhead, or designated critical habitat. The APHIS would exclude watersheds of the Salmon River, and the Snake River and its tributaries below Brownlee Dam. The APHIS would also exclude applying pesticides to Wildhorse River and Salt Creek within Adams County.

This concludes the review of the Idaho Rangeland Grasshopper and Mormon Cricket Suppression Program in accordance with 50 CFR 402.14 (b)(1), and MSA review in accordance with 50 CFR 600.920 (e)(3). The APHIS must contact NOAA Fisheries if new information becomes available, or if circumstances occur that may affect listed species, designated critical habitat, or EFH.

Ms. Debbie Artimez (208) 378-5648 is the NOAA Fisheries contact.

Sincerely,

D. Robert Lohn  
Regional Administrator





United States  
Department of  
Agriculture

Marketing and  
Regulatory  
Programs

Animal and  
Plant Health  
Inspection  
Service

Plant Protection  
and Quarantine

9134 West  
Blackeagle Dr.  
Boise, ID  
83709

(208) 378-5797  
FAX: 378-5794

February 18, 2004

Debbie Artimez  
NOAA Fisheries  
10215 W. Emerald #180  
Boise, ID 83709

Re: 2004 Idaho Rangeland Grasshopper and Mormon Cricket Suppression Programs

Dear Ms. Artimez:

This is to request your concurrence that our proposed 2004 Rangeland Grasshopper and Mormon cricket Suppression programs in Idaho would have no effect on anadromous fish species, designated critical habitat, or Essential Fish Habitat under NOAA Fisheries jurisdiction and therefore no consultation is required under the Endangered Species Act or the Magnuson-Stevens Fishery Conservation and Management Act. Our determination is based on our decision to define the proposed suppression area so that Idaho watersheds of the Salmon River and its tributaries, and the Snake River and its tributaries below Brownlee Dam are excluded from treatments. Animal and Plant Health Inspection Service (APHIS) would not apply pesticides to any watersheds in Idaho except those which lead to the Snake River above Brownlee Dam or those which drain to the Salt Lake Basin. Therefore, all watersheds in Idaho that contain listed salmon and steelhead (or critical habitat) would be excluded from the treatment program.

Thank you for your consideration of our proposal. We look forward to your concurrence that no consultation is required for the actions which are proposed in our Site Specific Environmental Assessments for Rangeland Grasshopper and Mormon Cricket Suppression Programs in Idaho during 2004. Please call me or Rob McChesney with any questions on this issue.

Sincerely,

C. David McNeal, Jr.  
State Plant Health Director



APHIS - Protecting American Agriculture  
An Equal Opportunity Employer

Federal Relay Service (Voice/TTY/ASCII/Spanish)  
1-800-877-8339

**Response to request for informal consultation on Endangered Species  
not received at this time.**

**Dave McNeal**  
Sent by: Dave McNeal  
02/14/2004 01:13 PM

To: susan\_burch@fws.gov  
cc: Rob R McChesney/ID/APHIS/USDA@USDA  
Subject: Background for Section 7 Consultation on 2004 Idaho Mormon cricket program

Susan

Thank you for your call earlier this week.

I have not received the Species List requested January 8, so I have used information from your website to create the attached background document. I realize some of items may be subject to revision when we get the Species List.

Please consider the attached document "2004 mc background for section 7 021404.doc" to be a starting point for our development of an informal consultation process. The other 10 attached files are referenced in the background document.

I am very nearly finished with the Environmental Assessment for this project, so I hope we can reach a conclusion quickly. Please let me know which next steps we can take to move toward a satisfactory conclusion.

Thank you.

**Dave McNeal**  
State Plant Health Director  
Idaho PPQ  
208-378-5797



2004 mc background for section 7 021404.doc



southwest\_map.pdf



cricket\_map.pdf



southeast\_map.pdf



Appendix 1 Guidelines FY2004 FINAL (Jan04).doc



appendix 4 form 5 treatment and monitoring sheet 022703.doc



App#4 cover sheet.doc



Appendix4 form 3 draft recommendation sheet 022703.doc



appendix 4 form2 draft evaluation sheet 022703.doc



Appendix 4 form 1 draft complaint 022703.doc



appendix 4 form 4 consistency sheet 030903.doc

#### **Appendix 4. PROTOCOL FOR DOCUMENTING REQUESTS, EVALUATIONS, RECOMMENDATIONS, REVIEWS AND MONITORING OF RANGELAND MORMON CRICKET SUPPRESSION IN IDAHO 2004**

1. Private landowners and/or public land managers who wish to request evaluations for Mormon Cricket suppression should complete Form 1, *Request for Evaluation of Need for Suppression of Mormon Crickets on Rangeland in Idaho*, and fax to USDA in Boise or Twin Falls. Private landowners may also call federal or state land management offices to request the submission of this form. A case number will be assigned by USDA to each request.
2. The USDA APHIS PPQ Mormon Cricket Program Staff in Boise will supervise temporary personnel across Southern Idaho. These Mormon Cricket scouts will conduct evaluations in response to requests as well as in areas that are historically susceptible to Mormon Cricket infestations. The Mormon Cricket scouts will complete Form 2, *Evaluation of Idaho Request # for Suppression of Mormon Crickets on Rangeland*. Scouts will submit these reports to USDA in Boise.
3. Experienced USDA managers will review the scouts' evaluations and determine if follow-up analysis is required. The USDA Mormon Cricket Coordinator will complete Form 3, *USDA APHIS PPQ Recommendation per Idaho Request # for Suppression of Mormon Crickets on Rangeland*. USDA will forward this form to the land manager for a decision.
4. Land managers will receive Forms 1 through 3 and will determine whether APHIS' recommendation is consistent with the program defined and analyzed in the environmental documentation. Additionally, the land manager will determine if additional safeguards are required for treatments. Land managers will complete Form 4, *Land Manager Consistency Review of Idaho Request # for Suppression of Mormon Crickets on Rangeland*. They will forward these forms to USDA in Boise.
5. If treatments are consistent with the description and analysis in the environmental documentation and if additional safeguards do not appear to preclude the treatment from being effective, USDA will apply or contract for application of the treatment. USDA will supervise contractors and evaluate the efficacy of treatments. USDA will complete Form 5, *USDA APHIS PPQ Treatment Monitoring of Idaho Request # for Suppression of Mormon Crickets on Rangeland*, and will transmit the form to appropriate land managers and land owners.

Forms 1 through 3 will be completed and filed for each Mormon Cricket complaint from a private landowner or public land manager. Forms 4 and 5 will be completed and filed when a need for further action is indicated by the prior steps.

**Form 1. REQUEST FOR EVALUATION OF NEED FOR SUPPRESSION OF  
MORMON CRICKETS ON RANGELAND IN IDAHO**

*Land managers/owners complete this form and fax to USDA APHIS PPQ in  
Boise at 208-378-5794 or Twin Falls at 208-734-7863.*

*USDA APHIS PPQ will evaluate the problem and provide recommendations to land managers.  
Action will be dependent on request for control from land manager, approval of recommended treatment,  
availability of funding, and the probability that available methods will be effective and safe .*

Party requesting control:

Date of request:

Principal contact:

Address:

Phone/cell phone/fax numbers:

County where rangeland is located:

Owner(s) or land manager(s) of rangeland where control is requested (BLM, Forest  
Service, State of Idaho, private party, etc):

Legal description of area where control is requested (please attach map showing land  
ownerships):

Describe nature of problem (cropland threatened, rangeland damaged, revegetation  
project, etc.):

Are you aware of environmentally sensitive issues such as streams or lakes, bees, or  
endangered species critical habitat in the area where you are requesting treatment?  
If so, please explain.

\*\*\*\*\*

**FOR USE BY PPQ**

Date and time:

Case #:

Referred to:

By:

Distribution of copies:

\*\*\*\*\*

**Form 2. EVALUATION OF IDAHO REQUEST #  
FOR SUPPRESSION OF MORMON CRICKETS ON RANGELAND**

*Will be completed by Mormon Cricket Field Scout under supervision of USDA APHIS PPQ upon receipt of a request for evaluation from a land manager and will be submitted to USDA APHIS PPQ Manager.*

Date evaluated:

Person performing evaluation:

Was complainant contacted during visit?

Density per sq. yd.:

Predominant instar(s):

Approximate acres of rangeland infested

Federal:

State:

Private:

Narrative report including sensitive issues (bees, water, endangered species, organic farms, etc.):

*Attach map showing infested areas and sensitive sites*

\*\*\*\*\*

FOR USE BY PPQ

Date and time:

Referred to:

By:

Distribution of copies:

\*\*\*\*\*

**Form. 3 USDA APHIS PPQ RECOMMENDATION PER IDAHO  
REQUEST # \_\_\_\_\_ FOR SUPPRESSION OF MORMON  
CRICKETS ON RANGELAND**

*To be completed by USDA APHIS PPQ Mormon Coordinator upon receipt of evaluation from Field Scout.  
Will be forwarded to Land Manager of rangeland specified in request for evaluation (and person who  
initiated request if other than land manager).*

I have reviewed the evaluation of complaint # \_\_\_\_\_ regarding an infestation  
on \_\_\_\_\_ in \_\_\_\_\_ County, Idaho.  
I recommend the following course of action:

\_\_\_\_\_  
Name and title of responsible USDA APHIS PPQ Mormon Cricket Coordinator

Signature \_\_\_\_\_

Date \_\_\_\_\_

\*\*\*\*\*

**FOR USE BY PPQ**

Date and time:

Referred to:

By:

Distribution of copies:

\*\*\*\*\*

**Form 4. LAND MANAGER CONSISTENCY REVIEW OF IDAHO  
REQUEST # \_\_\_\_\_ FOR SUPPRESSION OF MORMON  
CRICKETS ON RANGELAND**

*To be completed by land manager after review of recommendations from USDA APHIS PPQ  
Fax to 208-378-5794*

The Environmental Assessment, "Site-Specific Environmental Assessment, Rangeland Mormon Cricket Suppression Program, Idaho, EA Number: ID-PPQ-MC-2004-001", and associated Finding of No Significant Impact (FONSI) have been carefully reviewed. Request for Evaluation for Control, Evaluation of Request and Recommendation for Action # \_\_\_\_\_ have also been carefully reviewed. The recommendation is:

**Consistent**

☐

**Not Consistent**

☐

with control actions on rangeland specified by those documents. Any treatment will be implemented by APHIS in accordance with the operational procedures, design features, and mitigating measures described and adopted in the above-referenced documents.

In addition, the following measures are required as well as those referenced above:

Due to the following extenuating circumstances, treatment should not occur:

Signature \_\_\_\_\_

Name, title and organization of responsible official \_\_\_\_\_

Date \_\_\_\_\_

*Additional forms required by land management agency should be attached.*

\*\*\*\*\*

**FOR USE BY LAND MANAGER**

Date and time:

Referred to:

By:

Distribution of copies:

\*\*\*\*\*

**Form 5. USDA APHIS PPQ TREATMENT MONITORING OF IDAHO  
REQUEST # \_\_\_\_\_ FOR SUPPRESSION OF MORMON  
CRICKETS ON RANGELAND**

*To be completed by USDA APHIS PPQ at the time of treatment and post-treatment evaluation.*

**TREATMENT**

Date treatment occurred:

Contractor who applied treatment:

Acres treated:

Type and amount of pesticide applied:

Comments:

---

Name of USDA APHIS PPQ official in charge of managing control activity.

**POST-TREATMENT EVALUATION**

Date of evaluation:

Mormon Cricket density per sq. yd.:

Predominant species:

Predominant instar(s):

Other monitoring observations:

---

Name of person conducting post-treatment evaluation

\*\*\*\*\*

**FOR USE BY PPQ**

Date and time:

Referred to:

By:

Distribution of copies:

\*\*\*\*\*